

COUNTY OF LOUDOUN
DEPARTMENT OF PLANNING
MEMORANDUM

DATE: October 17, 2008

TO: Loudoun County Planning Commission

FROM: Michael Elabarger, Project Manager

SUBJECT: **October 23, 2008 Committee of the Whole**
SPEX 2007-0048
Springdale Montessori School

BACKGROUND

Benny and Mary Jane Nordahl of Purcellville, VA have submitted an application for a special exception to permit a private school and child care center in the AR-1 (Agricultural Rural-1) zoning district in order to establish a Montessori school serving up to 117 students utilizing the property's existing structures for classrooms. The property is located partially within the FOD (Floodplain Overlay District), and is also located in the HCC (Goose Creek Historic and Cultural Conservation District). This application is subject to the Revised 1993 Zoning Ordinance and the proposed uses are listed as Special Exception uses in Table 2-102 under Section 2-102. The property is approximately 6.10 acres in size and is located on the east side of Lincoln Road (Route 722), 0.1 mile south of Chappelle Hill Road (Route 709), at 18348 Lincoln Road, Purcellville, VA. The property is governed by the policies of the Revised General Plan (Rural Policy Area), which designate this area for rural economy uses and limited residential development, and a small portion of the property also lies within the Existing Village of Lincoln. The Property was previously approved for a school (SPEX 1986-0009) and country inn (SPEX 1986-0049) in 1987.

The applicant's desire to establish a Montessori School as described meets the definition of two defined uses of the Zoning Ordinance – school and child care center. The portion of the proposed facility dedicated to the care of children in kindergarten and younger is defined as a child care center. Further, the portion of the proposed facility dedicated to children in kindergarten and elementary school grades is defined as a school.

PLANNING COMMISSION

The Planning Commission held a public hearing on this application on September 18, 2008. Three (3) spoke in favor, or with no opinion, of the application, citing the benefits of Montessori education, perceived safety of Route 722/Lincoln Road, and an incident regarding the petition against the application.

Fifty-one (51) speakers spoke against the application, citing current/existing safety issues regarding Route 722/Lincoln Road and the one-lane bridges near the subject site; perceived negative impacts on the Village of Lincoln and surrounding properties from vehicular trips generated by proposed use; the perceived lack of need for the proposed uses; the observed vehicular operations within the property; the perceived precedent that approval of the uses would set; and the density of persons on the property per the proposed uses.

The Planning Commission voted 7-0-2 (Commissioners Brodrick and Klancher absent) to forward the application to a future Committee of the Whole meeting for further discussion.

STATUS

At both the briefing session and the public hearing, the Commission identified a number of questions and issues to be addressed; these are grouped in Attachment 2, and will form the basis of discussion at the work session. Staff is prepared to speak to all questions presented, but some information is forthcoming and will be handed out at the work session. The conditions of approval have been revised and updated and discussed with the applicant. The applicant is not in total agreement with conditions 6, 7, and 11, and seeks discussion of these with the Commission at the committee meeting.

Staff and the applicant representative discussed the possibility of the applicant lowering the maximum number of students in an effort to address the many concerns expressed by the Commission and the public. The applicant representative stated that this will be discussed with the applicant. Staff requested that the applicant representative and traffic consultant be prepared to answer questions regarding what a decrease in the maximum number of students would have on impacts generated by the proposed uses.

Attachment (9.) contains Supplementary Materials submitted by the Citizens to Preserve Lincoln Community, dated October 15, 2008. Copies were provided for each Planning Commissioner and staff; a copy is in the public file on the 2nd Floor of the County Government Building. Electronic copies can be obtained by contacting the Planning Department.

County staff from Zoning Administration, Office of Transportation Services, Community Planning, and Building and Development will be attending the Committee meeting to answer questions.

STAFF RECOMMENDATION

Staff recommends the application be forwarded to the Board of Supervisors with a recommendation of approval based on the findings below and the attached conditions of approval provided by Staff, or otherwise revised by the Commission.

FINDINGS FOR APPROVAL

1. The proposed Special Exception uses – school and child care center - are consistent with the planned land use policies of the Revised General Plan.
2. The proposed Special Exception uses – school and child care center - subject to conditions of approval, comply with the applicable requirements of the Revised 1993 Zoning Ordinance.
3. A school and child care center will have a positive impact on the County's economy and provide a private educational option for County residents.
4. The proposed Special Exception uses – school and child care center - will retain the historic character of the property, the Village of Lincoln, and Lincoln Road.
5. The proposed Special Exception uses – school and child care center – will adaptively re-use an historic structure and property that has historically been a school.
6. The proposed Special Exception uses – school and child care center – will provide sufficient improvements to address traffic impacts.

MOTIONS

1. I move that the Planning Commission forward SPEX 2007-0048, Springdale Montessori School, to the Board of Supervisors with a recommendation of approval, based on the attached conditions of approval dated October 17, 2008.

OR,

2. I move that the Planning Commission continue forward SPEX 2007-0048, Springdale Montessori School, to the Board of Supervisors with a recommendation of denial.

OR,

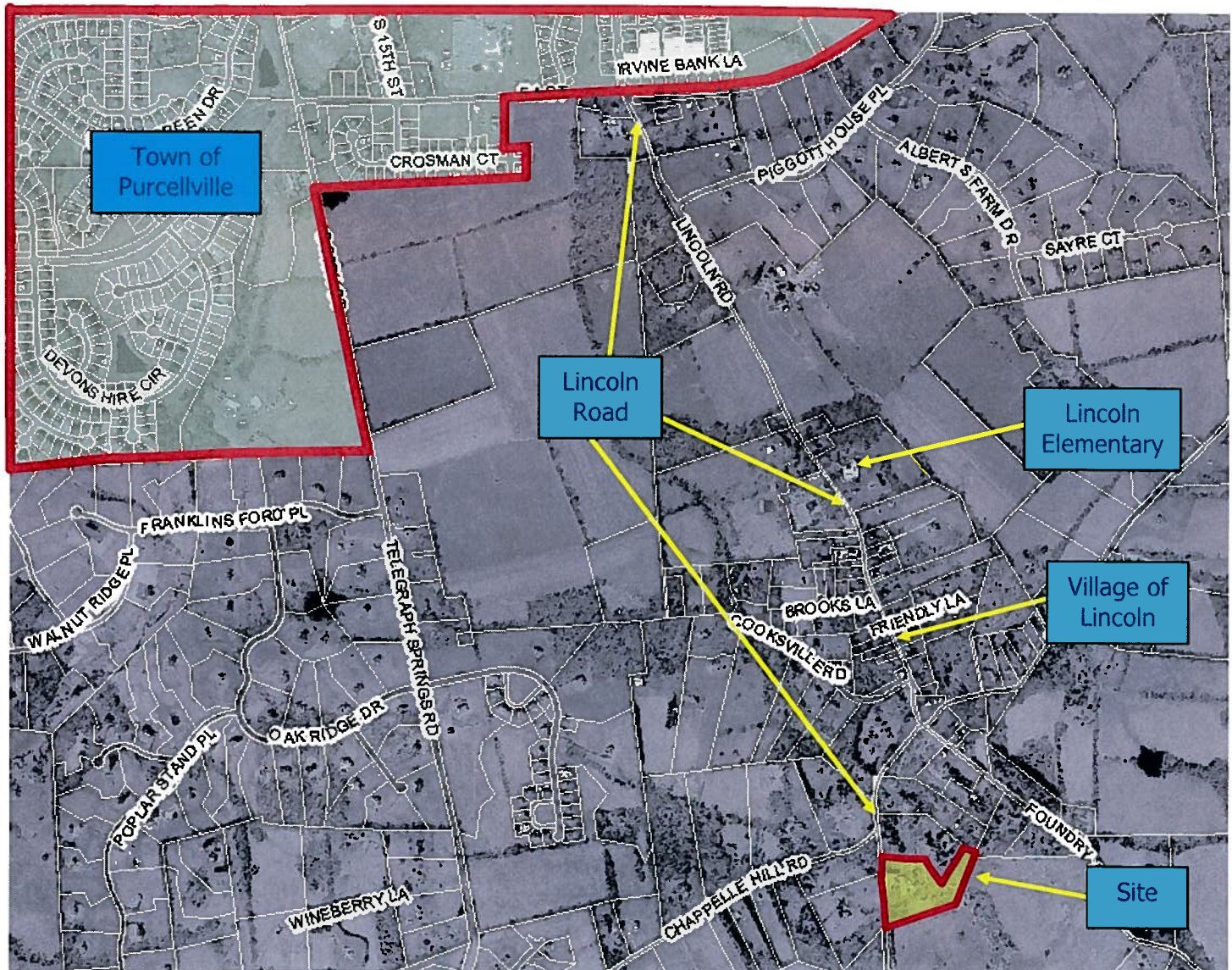
3. I move that the Planning Commission continue discussion of SPEX 2007-0048, Springdale Montessori School, at a future Committee of the Whole meeting.

Attachments:

1. Vicinity Map
2. Staff response to Commission Comments/Questions
3. Applicant response to Commission Comments/Questions, dated October 16, 2008
Statement of Justification, revised through October 15, 2008
4. Revised General Plan – Chapter 5 – Green Infrastructure (specifically Group Two: Heritage Resource Assets); Chapter 7 – Existing Villages; Chapter 10 - Rural Policy Area
5. Virginia Department of Health, Office of Drinking Water documentation
6. Virginia Department of Transportation (VDOT) referral, dated June 13, 2008
7. Photos of barn and proximity to road (3 pages)
8. Conditions of Approval, dated October 17, 2008
9. Supplementary Materials - Citizens to Preserve Lincoln Community, October 15, 2008

ATTACHMENT 1.

VICINITY MAP



Directions:

From Leesburg, take Harry Byrd Highway (Route 7) west to the Exit with Route 287. Proceed south on Berlin Turnpike (Route 287), then west on Business Route 7 (East Main Street). Turn left onto Maple Avenue (Route 722), which becomes Lincoln Road. Pass through the Village of Lincoln, and the property is approximately a quarter of a mile (0.25) on the east (left) side of Lincoln Road after crossing the second one-lane bridge.

ATTACHMENT 2.

Before the responses to questions asked by the Commission at the briefing and public hearing, Staff has addressed several of the larger topics that are very central to the review of this application. The individual question responses should be viewed along with the applicants' responses contained in Attachment (3.).

COMPREHENSIVE PLAN POLICY REVIEW

The application was reviewed against the policies of the **Rural Policy Area (Chapter 10)**, where 98% of the parcel lies, and where the special exception uses are located and conditioned to operate. The portion of the property that is located in the village is physically separated from the rest of the property by a stream and minor floodplain and does not include the special exception uses. The policies of **Chapter 10 (Existing Villages)** would also support the uses. The policies of **Chapter 5 (Green Infrastructures/Heritage Resource Assets)** coincide with applicable policies in Chapters 7 and 10, and would further support the proposed uses. The **Heritage Preservation Plan** also supports the Plan guidance on the importance of protecting historic and cultural assets.

All three chapters of the Plan and the Heritage Preservation Plan support the adaptive re-use of historic properties, which the application proposes by using the existing house and renovating the barn structure. Though not an agricultural use, utilizing an existing residential property for a non-residential use is consistent with rural economic objectives and supported by numerous policies. The application would provide a service closer to the rural population than currently exists. The Zoning Ordinance regulations, the Facilities Standards Manual requirements, the improvements proposed by the applicant, and the conditions of approval setting limits on the operation of the uses adequately mitigate the impacts of the proposed school and child care center.

The entirety of Chapters 5, 7, and 10 are included in Attachment (4.)

Scale / Compatibility

There is no specific definition for 'scale' in the Plan's glossary. The Plan defines 'compatibility' as "not in conflict with: in harmony with." These terms throughout the Plan have been interpreted as related to the size, character and scale of the actual buildings and design features of the site. The existing historic structures (main house and barn) are in scale with the rural character as exhibited throughout the Rural policy area. No new structures are proposed that would need to have their scale and compatibility judged, but expansion of the driveway, demolition and replacement of several pillars and fencing, and additional parking on the site is proposed.

Intensity

Intensity as defined in the Plan's glossary as: "A measure of the extent to which a tract of land is developed. Residential Density in units per acre is a measure of intensity; floor area

ratio is also a measure of intensity, as is square feet per acre.” The Plan measures intensity by the impacts of the use rather than the number of students on the property. In reviewing the application, the recognized impacts from the intensity – 117 students and 6 staff – of the proposed uses are manifested in several ways: traffic generation, noise creation, water consumption, and sanitary sewer operation.

Traffic Generation

The applicant submitted a traffic study that was reviewed by County and VDOT staff. The Level of Service (LOS) expected with this use in 2013 is “B”, which is acceptable. The proposed minor road improvements to Lincoln Road, pavement markings, and entrance apron addressed the principal issue of safe passage across the bridge. The traffic study has demonstrated that a safe queue distance, in a worst case scenario, can occur for southbound traffic turning left into the property, without inhibiting northbound traffic on Lincoln Road. The Conditions of Approval commit the applicant to their desired operational times, phased drop-offs and pick-ups, and maximum number of students on the property. Through referrals, an on-site meeting, and subsequent revisions and submissions, the road network will be able to handle the expected traffic generated by the application.

Noise Creation

There are no regulations in the Zoning Ordinance to regulate noises that may be generated with this type of application, and a noise study is not required. The principle source of noise would be children playing in the playground area. Condition (11.) means to limit the number of children in the outdoor playground area at any one time. See question IV.(7.) below for further examination of noise.

Water Consumption

The well was drilled in 1987 to support the previous school use. Documentation included in Attachment (5.) indicates the status of the system and the necessary steps to achieve permits. If the well system cannot support the proposed number of persons, or does not meet requirements/specifications, permits will not be granted, and the use will not be established or the number of students adjusted. The operation of a school or child care center will be under the ongoing oversight, review, and permitting by the County Health Department and the state Office of Drinking Water.

Sanitary Sewer Operation

The septic system was constructed in 1989 with a design capacity of 12,215 gallons/week. This averages to 1,745 gallons/day. It was evaluated by the County Health Department in June of 2007 and found to be in good working order. Referrals from the County Health Department for this application have indicated sufficient capacity of the system for the anticipated number of persons associated with the proposed uses. Just as with the well system noted above, final permits will determine the number of students permitted on the property. The operation of a school or child care center will not occur without the oversight, review, and permitting by the County Health Department and appropriate offices of the state Department of Health.

COMPARABLE APPLICATIONS

The Commission was interested in what precedence has been set with other similar applications; below are two applications. Staff notes that per SPEX 1986-0009, the Springdale property was approved for a school use with limits on the number of students (50) enrolled and vehicles on the property (20).

Village Montessori, SPEX 2005-0011 – Approved (9-0) on November 1, 2005

This application was approved to allow for a pre-school, with no more than 30 maximum students on the property at any one time, on an 8.69 acre property zoned CR-1 on Snickersville Turnpike just southeast of the village of Bluemont. The preschool was to establish one classroom in a 1,500 square foot space within a recent addition to an existing converted barn, with no new construction proposed. An outdoor play area of 2,700 square feet was to be located behind the preschool, and 12 parking spaces provided adjacent to a gravel turn around identified for dropping off students for the preschool. Surrounding uses were zoned A-3 and CR-1, and residentially developed. The Board approval found that the use was consistent with the planned land use policies, in accordance with the Zoning Ordinance, and would not negatively impact the historic character of the property, the Village of Bluemont, or Snickersville Turnpike.

Operational hours were conditioned to 9 a.m. to 4 p.m., Monday through Friday. Issues regarding well water and on-site sewage treatment were resolved with a condition stating that "Prior to issuance of a zoning permit, the applicant shall submit completed development samples and testing for approval of the water supply system and an approved drain field for on-site waste water disposal to the Health Department." Issues regarding internal circulation and parking, which were noted by Staff as having to meet the requirements of the Facility Standards Manual (FSM) for site plan approval, were dealt with by the applicant agreeing to – but not being conditioned to - be in compliance with all the requirements per the FSM.

The application noted that there would be one morning and one afternoon session. With a condition limiting the property to no more than 30 students at any one time, and the prospect of two entirely different and non-overlapping sessions, the maximum possible number of students that could be enrolled would be 60 students, which is the comparable number to that for the Springdale application, which is currently conditioned to no more than 117 students enrolled. See the table below for an intensity comparison. Staff notes that the Village Montessori school is indeed operating two sessions, but neither is currently at the 30 students per session limit.

Busy Kids, SPEX 2005-0005/ZMOD 2005-0007 – Approved (9-0) March 21, 2006

This application was approved 9-0 by the Board of Supervisors to allow a child care center for up to 200 enrolled children in the PD-IP zoning district within a 41,000 square foot existing building on a 2.2 acre parcel. Conditions of approval included meeting State standards for the number of students in the outdoor play area; bollard fencing along an arterial roadway; traffic removal and parking lot cleaning only between 8 a.m. and 10 p.m. Monday through Friday; 2 special events for multiple classes per year, not to exceed 4 hrs. in duration, and between 10 a.m. and 8 p.m.; 32 parking spaces for staff. Sixty-five (65) total parking spaces

were proposed, as were three vans that were to transport approximately 25% of the students to and from the site.

	Location / Policy Area	Max # of students	Use Square Footage	Site acreage
Springdale	Rural	117	8,341*	5.9
Village Montessori	Village/Rural	60	1,500	8.69
Busy Kids	Suburban	200	13,861	2.2

* - House = 6,592 sf; Barn = 1,749 sf, per Sheet 1 of the Special Exception Plat.

STAFF RESPONSES TO BRIEFING AND PUBLIC HEARING QUESTIONS

I. TRANSPORTATION/TRAFFIC STUDY

1. Traffic Study/analysis:

(Applicant)

- a. Compare 117 students per "private school" versus the student breakdown of 90 "day care center" and 27 "private school".
- b. Detail the inputs and outcome of stacking analysis, Exhibit A, and why the applicant states that no problems are expected.
- c. Explain assumption that 40% of traffic will approach from the south.
- d. Explain assumption that kids will leave at 3:30 and not during rush hour, when applicant states that pick-up of Primary 2, Elementary 1, Afternoon Enrichment Program I and II, and Late Afternoon Enrichment Program will occur between 3:30 and 5:30 p.m.
- e. Describe the movement, stacking, and turn-around for vehicles on the site during periods of drop-off and pick-up.
- f. Impacts on the village of Lincoln.

2. Safety issues:

- a. Describe the safety and history of flooding of the nearest one-lane bridge.

(Applicant, Staff)

Response is awaited from the Sheriff's Department on accident data in the vicinity of this application. It will be forwarded to the Commission as soon as it is received. The applicant shall address flooding history.

- b. Lincoln Traffic Calming project (see Citizen's to Preserve Lincoln Community submission, Volume 1) – how has this project been incorporated into analysis of this application? **(Applicant)**

- c. Will guard-railing be installed along the Springdale property? **(Staff)**

Representatives of the VDOT Leesburg Residency indicated that the area in question is too steep and narrow for guard rails to be installed. A Maintenance Manager and Traffic Engineer were to examine the site and provide further detail on the situation. See Attachment (7.) for pictures of this area.

- d. Existing conditions of Lincoln Road? Accident data near Springdale. **(Applicant, Staff)**

The existing condition of Lincoln Road in the vicinity of Springdale is a rural two-lane road with road widths averaging 10' each, narrowing down to a total road width of 12' at the one-lane bridge. New asphalt pavement and lane markings were laid in the summer of 2008. There are no formal shoulders, and there is only shallow drainage on a portion of the western side adjacent the property. There are no guardrails at the one-lane bridge, only short concrete abutments. New guardrail was installed on the southeast side of the road just south of the property; see (c.) above regarding guard railing; see (a.) above regarding accident data.

- e. Detail how emergency vehicle access is being provided; confer with County Department of Fire, Rescue, and Emergency Management. **(Applicant, Staff)**

In further consultation with the County Department of Fire, Rescue, and Emergency Management, a representative from a Purcellville Fire Company visited the site, and indicated that in the current conditions, emergency vehicles could access the property. However, with any future improvement, a minimum 18 foot wide drive aisle, with no associated parking/pick-up/drop-off spaces or other encumbrances, should be provided and accessible at all times. Any changes made by the applicant to the drive aisle access will be reviewed by Fire and Rescue and Building and Development staff to determine whether the design would attain site plan approval in the future.

II. ZONING

1. When did the school use per SPEX 1986-0009 cease to operate? **(Applicant)**
2. Current state of exercising the country inn use per SPEX 1986-0049? **(Staff)**

Initial conference with the County Attorney indicates that an approval under the 1972 Zoning Ordinance would still apply to the property, subject to its' conditions of approval. If the Commission should want a more definitive answer, further discussion with the County Attorney would be required.

3. Describe how/why parking is allowed in the minor floodplain.

(Staff)

The parking lot is a currently developed gravel lot, as approved for use per SPEX 1986-0009, and measures approximately 6,612 sf. The physical area of the existing lot is not being proposed to be expanded. No detail of any changes to the lot (space lining, tire stops, edging, lighting) have been noted by the applicant, but are requested by Staff at this time. The SPEX plat identifies the ability to contain 23 spaces meeting the Facilities Standards Manual (FSM) minimum of 18' x 9'; the dimensions of the parking spaces could be waived and changed at the time of site plan. To remedy that possibility, Staff has crafted a condition stating that all parking spaces shall be 18' x 9' minimum. Staff notes that, per Section 4-1500, the applicant could develop up to 5,000 sf of parking in the minor floodplain by-right. Staff also notes that the Zoning Ordinance and FSM may require improvements at the time of site plan in and around the parking lot area.

4. Describe how future site plan review/approval and review and permitting by County or State agencies relate to the review of this Special Exception **(Staff, Applicant)**

Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other requirement. The review and decision on whether or not to permit the proposed uses by Special Exception is not contingent upon any other approval by the County, State, or other entity. However, approval of these uses does not end the regulatory review of the proposed school/child care facility, and failure to achieve approvals from any other regulatory agency may preclude the uses from occurring totally or in part.

As requested in Question VI.(8.), upon consultation with the applicant for information beyond the County level, Staff will complete and provide to the Commission a flow chart of the regulatory steps the applicant may or will encounter prior to operating a school and child care center on the property.

5. Describe how/if applicant could request more students or different numbers of students per use. **(Staff)**

If approved by the Board, the applicant would need to apply for another Special Exception to amend any aspect of the conditions of approval of that approval.

6. How does the County define one student?

(Staff)

There is no definition of "student" in either the Zoning Ordinance or the Revised General Plan. Through the conditions of approval, the Commission or Board can define what a student is for this application. Condition (2.) defines student as "one child enrolled in one or more programs (Enrichment, Primary, Elementary, etc.) for any part of any day of the operational week of the school and/or child care center.

7. Describe enforceability of drop-off and pick-up times.

(Staff)

Condition (6.) commits the applicant to the drop-off and pick-up times as described in the materials submitted by the applicant at the public hearing. Enforcement of this condition would be like that of all other conditions, where an observed violation would need to be brought to the attention of the County Department of Building and Development via the "Alleged Zoning Violation Form".

8. Describe how the student numbers came about.

(Applicant)

9. Address the phrase "intensity of use factor" stated by members of the public; is it adaptable to the proposed uses?

(Staff, Applicant)

In the public comment heard at the public hearing, and in the documentation binders submitted by the Citizen's to Preserve Lincoln Community (Volume 1, Scale and Intensity of Use tab), the citizen's present data from two sources:

1.) Using the Zoning Ordinance regulations for certain uses (Section 5-600), the citizen's have noted, or in some cases inferred, the range of parcel sizes and number of persons, and divided those to get an intensity of use. Staff notes that, in the case of the bed & breakfast use, the citizen's have divided the minimum acreage (5) by the minimum number of persons (14) to get an intensity of 2.8 persons/acre, rather than the maximum number of persons, which would yield an intensity of 4.0 persons/acre.

2.) Using existing Montessori schools and day care center data, the citizen's have divided the size of the parcels these uses are on by the maximum number of students served to get an "intensity of use factor".

There are no County intensity regulations in the Revised General Plan or the Zoning Ordinance regarding the number of students associated with a child care center, or a school with more than 15 students. As a use by special exception, the Commission and the Board ultimately have the choice to determine what the appropriate intensity of use the property can handle.

The typical program for a public elementary school in the County is a minimum of 20 acres and a maximum student enrollment of 875 students, which is an intensity of 43.75 students/acre. This is over twice that ($117 \text{ students} / 5.9 \text{ acre} = 19.8$) of this application.

10. Explain how "licensed capacity" of proposed uses will affect and determine the number of students permitted on the property, and how this affects the number of necessary (per the Zoning Ordinance) and provided (physically available on site) parking spaces.

(Applicant)

11. How will County Building & Development determine or verify parking (number of spaces and location) at the time of site plan, as referenced in staff referrals/report.
(Staff)

The exact number of parking space required at the time of site plan is based on what the licensed capacity of the proposed uses is. This licensed capacity has not been provided by the applicant, and it is assumed that this cannot be determined until further planning is done by the applicant (exact room configurations, etc.) and discussion is had with County Social Services or State agencies that govern schools and child care centers. This question is dependent on the applicant's response to (10.) above.

III. PLAN POLICIES

1. Provide copies from the Revised General Plan: Chapter 7, Rural Policy Area policies; Chapter 10 - Existing Villages policies.
(Staff)

See Attachment (4.) of this memo.

2. Discuss how Staff reviewed the application against the policies of Chapters 5, 7, and 10 of the Revised General Plan:
(Staff)

See the beginning of this Attachment for a brief explanation to this question.

3. Describe the Historic District Review Commission (HDRC) review process for this property, and implications of their decisions.
(Staff)

The HDRC reviews applications for owners of properties within any of the County's designated historic districts seeking to raze, demolish, erect, reconstruct, or perform exterior alterations or restorations of any building or structure, including signs, or for the demolition, razing, moving, or relocating of any historic landmark, building, or structure. The HDRC may issue a "Certificate of Appropriateness" (CAPP) per the regulations of Section 6-1900 of the Zoning Ordinance.

Should the HDRC find that any or all of the proposed alterations to the property (demolition of any structure, exterior alterations to any structure, or erection of any structure including signs and fences) are not consistent with the Historic District Guidelines for the Goose Creek Historic District and a CAPP is not issued, then the applicant will not be able to obtain a zoning and/or building permit to proceed with the proposed alterations. In this case, the applicant may still pursue the use of the property under the terms and conditions of the Special Exception, but the applicant may be required to modify the intensity of that use. *Note: The applicant has the right to appeal the decision of the HDRC to the Board of Supervisors within 30 days of the HDRC action.*

The applicant has chosen to seek the Special Exception for the uses prior to applying for a CAPP from the HDRC.

IV. SCHOOL OPERATIONS

1. Describe how drop-off and pick-up times will physically occur on the site? **(Applicant)**
2. Describe how – and how many – children will be staggered and enrolled in the Morning enrichment programs I, II, and III; Primary I and II; Elementary 1; Afternoon enrichment programs I and II; and Late afternoon enrichment program. Note how siblings or carpools of different aged children would work. **(Applicant)**
3. Describe the year-round use of the property as a child care center/school. **(Applicant)**

Per Condition (4.), the use of the property as a school and/or child care center shall occur for not more than 46 consecutive weeks each year, beginning with the first full week of September (where Monday is not a holiday) and concluding with the last full week in July. For the 2008/2009 school calendar year, this schedule would have begun with Monday, September 8th and would conclude with Friday, July 24th.

4. Describe applicant's Montessori Certification, experience/history with operating a school, and their role once the child care center/school is operating. **(Applicant)**
5. Provide detail on anticipated opening date, food service, odor mitigation, trash disposal, and snow removal. **(Applicant)**
6. Is Springdale Montessori a for-profit or non-profit venture? **(Applicant)**
7. Describe how many, when, and for how long students will be outside, where outside they will go, and whether a noise study was conducted to measure the impacts of these students? **(Applicant/Staff)**

The applicant will address the details of this questions; no noise study was submitted as part of this application. The Commission may include conditions of approval that limit the amount of students involved in, and the number, time, location, and duration of, outdoor activities. Noise anticipated from the playground is not regulated by the Zoning Ordinance, as it is not a stationary noise source (i.e.: a generator). The applicant has made no mention of amplified noise, such as that coming from a public address (PA) system, in the application. Such a noise source is regulated by the Zoning Ordinance, where a stationary noise source (specifically categorized as continuous noise) must not exceed 55 dBA at the property boundary with any residential use. Zoning Administration's Enforcement Division would investigate complaints regarding decibel levels.

8. Describe and fully detail any and all activities on the property outside the usual daily operation of child care center and school (ie, open house/parents night, graduation, parties, picnics, etc.) **(Applicant)**

The applicant will address this question. The Commission may create conditions to regulate the time, place, extent, etc. of such events, or prohibit them altogether.

V. SITE – EXISTING CONDITIONS

1. Describe the history of flooding on the property; whether children will be outside the fenced-in playground area; the safeguards of keeping children from the streams on the property; fence height. **(Applicant)**
2. Describe how entire house will be utilized on the interior. Will there be a separated residence there? **(Applicant)**
3. Describe how the barn will be used, the extent of renovations that would occur, the necessary permits/approvals needed to allow the barn to be occupied, safety of occupying the barn in relation to Lincoln Road. **(Staff, Applicant)**

The applicant will explain their planned use and renovations to the existing barn. If the requested Special Exception is approved, or if the applicant would choose to utilize the barn with a 'by-right' use, a site plan (STPL) and construction plans and profiles (CPAP) would be ministerially reviewed by the County. In order to renovate the barn, the applicant would need to apply for and receive some or all of the following permits from County Department of Building & Development or other County agencies: Health Permit (if property is served by well or septic, or for food service facilities); Zoning Permit; Building Permit; Electrical Permit; Gas Permit; Plumbing Permit; Mechanical Permit; Occupancy Permit (new construction only); Grading Permit; Fire Suppression Permit; Soils Report.

If any exterior alterations were to be made, for non-agricultural purposes, the applicant would need to file an application for review of those alterations with the County's Historic District Review Committee (HDRC) in order to receive a "Certificate of Appropriateness" (CAPP).

4. Describe the market study that shows demand for these uses. Where do they come from? **(Applicant)**
5. Were effects on the stream from the parking lot analyzed; what materials are being suggested, pervious or impervious? **(Applicant, Staff)**

The applicant will address this question; no specifics of improvements to the parking lot are provided in the applicant's submissions. It's been determined that the parking lot may continue to be used as is, utilizing the area that currently is graveled and as delineated on the plat associated with SPEX 1986-0009/SPEX 1986-0049. Section 5-1400 of the Zoning Ordinance requires certain landscaping, buffering, and screening, which the applicant has stated will be addressed and provided at the time of site plan review. Requirements of the Facilities Standards Manual may also be enforced at the time of site plan review. The Commission may craft a condition of approval to this effect, or other further restrictions.

6. Describe the status and operation of geo-thermal heating on the property. **(Applicant)**

7. Describe the County review of septic and water capacities regarding the expected daily use of the proposed uses. **(Applicant, Staff)**

The applicant will provide the Commission detail on the existing well and septic system and answer any questions.

Regarding the well: The Virginia Office of Drinking Water, in a letter to the applicant dated August 7, 2008, stated that the lab report of the well water tested below all USEPA contaminant levels. Attachment (5.) contains this letter, and other correspondence that preceded it regarding the evaluation and recommendations concerning the well water system.

Regarding the septic system: In the review of this application, the County Department of Health has noted that the septic system has adequate capacity for the proposed numbers of students associated with this use, but noted that - as with all land developments and use permits - further permitting and consultation with that department must occur during the administrative permitting stages.

VI. OTHER

1. Describe and detail any community meetings that were held – when, who attended, matters discussed, outcomes. **(Applicant)**
2. Status of possible missing VDOT referral. **(Staff)**

The last referral was dated June 13, 2008; all comments were resolved. See Attachment (6.).

3. Compare all facets of the proposed Montessori school to Lincoln Elementary school, based on 117 students. **(Staff)**

	Lincoln Elementary	Springdale
Number of Students	147 (Fall 2008)	117 maximum proposed
Number of Employees	32 *	6
Parcel Size	9.5 acres	5.9 acres
Square Footage (interior)	<i>Not available</i>	House-6,592 sf / Barn-1,749 sf
Playground area	<i>Not available</i>	13,705 sf
Parking Spaces	33	28
Drop-off/pick-up area	In front of building	4 spaces proposed
Designated Bus lane	Yes	---
Delivery area	Yes	Loading space near building
No. of Classrooms	10	<i>Undetermined</i>
No. of Offices	2	<i>Undetermined</i>
Other Rooms	3	<i>Undetermined</i>
Kitchen Staff	4	---
Student Bathrooms	4 (10 toilets, 4 urinals)	<i>Undetermined</i>

Operational Hours	7:50 a.m. – 2:35 p.m.	7:30 a.m. – 5:30 p.m.
Afterschool Activities	Vary	Until 5:30 p.m.
Summer Programs	No	Yes; 6 weeks June-July

* - Derived from the School website staff list.

4. Provide information/background on Siena Academy (St. Catherine's Catholic Church, Great Falls), a Montessori school on a 2-lane road near a one-lane bridge. **(Staff)**

The Siena Academy received a "special permit amendment" in 2004 to operate a nursery school (ages 2.5 – 6) and private school (grades 1-8) in an existing space associated with an existing church with more than adequate parking capacity. Conditions included: 150 maximum students; a 4,200 sf play area with 4' fence; operating hours 8:30 a.m. – 3:30 p.m. Monday – Friday; maximum 25 employees; no summer programs. Staff can provide staff report material upon request.

The one-lane bridge on Springvale Road is approximately one-half mile west of the church; it is a wooden structure, approximately 15' wide and 20' in length, and has dual guardrails on the bridge itself and approaches from each direction. Further information regarding the one-lane bridge was requested from contacts at Virginia Department of Transportation and is forthcoming.

5. Provide RGP definitions of "rural character" and "village". **(Staff)**

The Plan does not define "rural character" or "village" in the Glossary. The Commission is directed to Chapter 10, page 10-1, where the existing villages of the County are described and policies for preserving and furthering the intents of villages are extolled. As previously mentioned, the existing historic structures on the site are proposed only to be renovated with minor additions, under the review and approval of the HDRC, with no new structures or buildings.

6. Provide Fire/Rescue service provider and response time. **(Staff)**

The new County Public Safety Center planned to open in January of 2009 in the Town of Purcellville would be the first responder to this property, with a time of 7:57.

7. Provide all background on the denied SPEX 1998-0026 Community Montessori (Sterling) school application.

(See binders from Citizen's to Preserve Lincoln Community, Volume 3, first tab)

8. Provide a flow chart of how a child care center/school is established. **(Staff)**

Following conference with the applicant, this information will be provided to the Commission.

9. Describe how lighting on the property will be provided in accordance with FSM Section 7.110(C) – site lighting for a commercial use serving the public after 5:00 pm. None has been specifically indicated. **(Applicant)**

**SPRINGDALE MONTESSORI SCHOOL
SPECIAL EXCEPTION 2007-0048
APPLICANTS' RESPONSES TO PLANNING COMMISSION
AND PUBLIC HEARING ISSUES
October 16, 2008**



I. TRANSPORTATION/TRAFFIC STUDY

1. Traffic Study/analysis:

(Applicant)

- a. Compare 117 students per “private school” versus the student breakdown of 90 “day care center” and 27 “private school”.

The planned maximum enrollment for Springdale School is 117 students, ranging in age from 3 to age 9. These ages include two years of preschool and grades K-3. The County Zoning Ordinance treats preschool as daycare. It is anticipated that there will be approximately 30 children in kindergarten when the school achieves full enrollment in three to five years. Under the Ordinance, kindergarten is treated as either day care or school. Although kindergarten is more appropriately a school grade, the Applicants included their kindergarten as daycare. Because the parking requirements for day care are greater than school, this puts a greater demand for parking on Springdale. For school planning and curriculum planning, and traffic planning, it does not make any difference how the kindergarten class is grouped. See Table A, Site Trip Generation Analysis prepared by Wells and Associates attached hereto.

- b. Detail the inputs and outcome of stacking analysis, Exhibit A, and why the applicant states that no problems are expected.

Additional widening is proposed for Lincoln Road at the site entrance and is shown on the plans. The widening provides additional space for southbound left turning vehicles into the site when gaps in northbound traffic occurs. The space provided will allow northbound vehicles to proceed past the entrance before the yield condition occurs at the one lane bridge. VDOT requested that three southbound vehicles should be able to stack to allow a potential northbound traveling vehicle to pass prior to the yield, one lane bridge condition. The VDOT requirement was a conservative estimate based on engineering judgment although the analysis indicated this condition is not expected.

(Wells & Associates)

- c. Explain assumption that 40% of traffic will approach from the south.

This was an estimate provided by the applicant. However, further traffic analysis has been completed based on a worse case condition to include 1) a 90/10 split with 90% coming from the north and 10% from the south, and 2) all 117 students arriving at the same time in single occupant vehicle (SOV) as opposed to some carpooling and contrary to standard Institute of Transportation Engineers (ITE) published data. The analysis showed the intersection would still operate at levels of service (LOS) “B” or better during the peak hours.

(Wells & Associates)

- d. Explain assumption that kids will leave at 3:30 and not during rush hour, when applicant states that pick-up of Primary 2, Elementary 1, Afternoon Enrichment Program I and II, and Late Afternoon Enrichment Program will occur between 3:30 and 5:30 p.m. Pick up times are staggered in the afternoon. Thirty (30) children will be picked up at 12:30 pm. Eighty-seven (87) children will be picked up between 3:30 pm-6:00 pm (Lincoln Road peak hours from 4:00-5:00 pm). Please refer to 'Springdale Montessori School Arrival & Departure Schedule' for detailed information, a copy of which is attached.

The traffic analysis assumes the maximum potential trip generation for the site, know as the "peak hour of the generator", which typically does not coincide with the peak commuter hours.) These trips were then applied to the commuter PM peak hour although the departure times are expected to occur prior to this time period. **(Wells & Associates)**

- e. Describe the movement, stacking, and turn-around for vehicles on the site during periods of drop-off and pick-up.

See Response b. above. Also, see Circulation Exhibit prepared by Huntley Nyce, Associates. **(Wells & Associates)**

- f. Impacts on the village of Lincoln.

VDOT Traffic Volume Estimates (2007) indicates that Lincoln Road carries 3,800 average daily trips (ADT) per day north of Foundry Road. Using the highest potential trips per day shown on the supplemental trip generation Table A (i.e., site trips with school + day care use) and an 80 percent north-south distribution of site trips, approximately 377 site trips per day ($471 \text{ vpd} * .80 = 377$) are estimated to be added to this portion of Lincoln Road. This estimate does not account for those trips that are already on the road system and "drop-off" students on the way to work or other trip making activities. Based on these estimates, the project would account for roughly 9% of the total existing trips. The County has established a documented 15% level of site trips as meeting the requirement for further study (i.e., impact or study area). Given the relatively low volume found at the site entrance and the high level of service shown with a future, conservative analyzed condition, it is anticipated that the County standard of LOS "D" or better would still be met within the Village. **(Wells & Associates)**

2. Safety issues:

Describe the safety and history of flooding of the nearest one-lane bridge.

The Applicants have owned the property since 2005. They have not witnessed any flooding of the bridge or road during the period of their ownership during which there were several very heavy rain storms.

The Applicants and Mr. & Mrs. Fones, prior owners of Springdale, are not aware of the one-lane bridge ever being flooded. The height is 8 feet over the normal water level so it is not

likely that it would flood even under extreme conditions. It is also not likely that water could collect on the bridge, as there is a run off into the creek. According to VDOT the bridge is inspected annually and is in satisfactory condition. (Applicant, Staff)

- a. Lincoln Traffic Calming project (see Citizen's to Preserve Lincoln Community submission, Volume 1) – how has this project been incorporated into analysis of this application? The Applicants support the Traffic Calming Project and believe that Springdale School is compatible with the project. The school entrance, new signage and the existing one lane bridge to the south of the Village should help slow approaching traffic in preparation for entrance into the Village. (Applicant)
- b. Will guard-railing be installed along the Springdale property? (Staff)
- c. Existing conditions of Lincoln Road? Accident data near Springdale.
According to the Sheriff's office Lincoln Road is relatively safe with fewer accidents than comparable roads such as Snickersville TPK and Silcott Springs Road. A table showing the number of accidents on Lincoln Road is attached. (Applicant, Staff)
- d. Detail how emergency vehicle access is being provided; confer with County Department of Fire, Rescue, and Emergency Management.
Lieutenant Jeff Johnson and his crew of about five people visited Springdale on October 9, 2008 and met with Mr. and Mrs. Nordahl. It was agreed that the Applicants would provide enough width on the driveway and entrance (18 feet) to accommodate fire and rescue equipment ample movement. (Applicant, Staff)

II. ZONING

1. When did the school use per SPEX 1986-0009 cease to operate?
The Applicants were not part of the operation of the prior owner's business. They are not able to answer this question. (Applicant)
2. Current state of exercising the country inn use per SPEX 1986-0049?
Springdale is not currently operating as a Country Inn. (Staff)
3. Describe how/why parking is allowed in the minor floodplain. (Staff)
4. Describe how future site plan review/approval and review and permitting by County or State agencies relate to the review of this Special Exception (Staff)

5. Describe how/if applicant could request more students or different numbers of students per use. (Staff)

6. How does County define one student? (Staff)

7. Describe enforceability of drop-off and pick-up times.

The last allowed pick-up is 6:00 pm. See Springdale Montessori School arrival & departure schedule. Springdale Montessori School will implement penalty fees after 6:00 pm. (Staff)

8. Describe how the student numbers came about.

The number of students is the result of a carefully conducted assessment of what is required in order to be able to offer a diverse and rich curriculum, quality teachers and a scale that is in harmony with the buildings, grounds, infrastructure and community, while meeting or exceeding all county and state codes and regulations. (Staff, Applicant)

9. Address the phrase "intensity of use factor" stated by members of the public; is it adaptable to the proposed uses?

The proposed use is well within what is allowed by special exception. The Rural policy states that the county supports a variety of opportunities for activities that preserve the rural character and are compatible with the dominant land use pattern in the Rural Policy Area. Appropriate use includes Private Schools. Where possible, it states, such uses should locate in existing historic and/or agricultural structures.

Springdale is located outside of the village, and thus is not regulated by village rules. However, the village of Lincoln does already have a fair amount of non-residential activities. These includes;

1. Lincoln Elementary School a 12,277 square foot building with 147 students and 32 employees on 9.75 acres, which equals 18 people/acre.

2. Lincoln Studios with 11 offices servicing a variety of businesses and one studio on 0.56 acres. Assuming one person/office and one for the studio, it equals 21 people/acre. They have 5 parking spaces, which equals 9/acre. (The proposed use for Springdale would equal 21 people/acre and less than 5 parking spaces/acre)

3. Breakthrough Inc. with 6 employees and 6 parking spaces on 0.3 acres. That is equivalent to 20 employees and 20 parking spaces/acre

4. Lincoln Store with a Post Office, one store and 4 parking spaces on 0.25 acres.

5. The Abernathy & Spencer Nursery with numerous employees and approximately 12 parking spaces

6. The Goose Creek Meeting House with a parking lot for approximately 20 cars

7. Clint Good Architects

8. Atex Consulting

9. Grace Methodist Episcopal Church
10. The historic Quaker meeting house

According to the four traffic studies conducted by Wells & Associates, the actual daily traffic on Route 722 is approximately 1,500 cars per day. According to the 2007 VDOT analysis, the traffic in the village is 3,800 per day. The school would add less than 9% to that according to Wells & Associates. The bulk of the additional traffic would be spread out over 2 hours in the morning and 2-1/2 hours in the afternoon. See the Springdale Montessori School Arrival & Departure Schedule. **(Staff, Applicant)**

10. How will County Building & Development determine or verify parking (number of spaces and location) at the time of site plan, as referenced in staff referrals/report.

(Staff)

11. Explain how "licensed capacity" of proposed uses will affect and determine the number of students permitted on the property, and how this affects the number of necessary (per the Zoning Ordinance) and provided (physically available on site) parking spaces. **(Staff)**

III. PLAN POLICIES

1. Discuss how Staff reviewed the application against:

(Staff)

- Ch. 10 – Existing villages
- Ch. 7 – Rural Policy area
 - Regarding scale, intensity, compatibility
 - Traffic impacts on village
- Ch. 5 – Heritage resources
- Heritage Plan policies

2. Provide copy of Rural Policy Area (esp. Economic) policies.

(Staff)

3. Describe the Historic District Review Commission (HDRC) review process for this property, and implications of their decisions.

(Staff)

IV. SCHOOL OPERATIONS

There will be 3 classes held in the main building with a maximum of 90 students total. One class will be held in the barn with a maximum of 27 students. Please see schematic drawings for more details.

The Applicants would like to accommodate growth for the school in three phases:

1. Phase I -First year of school operation with no more than 48 students with two classrooms. Both classrooms will be in the main building.
2. Phase II- Second year of school operation there will be a classroom added in the lower level of main building.
3. Phase III- Fourth year of school operation there will be a classroom in the barn.

1. Describe how drop-off and pick-up times will physically occur on the site?
Arrival time of students has been thoughtfully considered. Arrival times will be staggered from 7:30 am -9:30 am. Please refer to the 'Springdale Montessori School Arrival & Departure Schedule' for detailed information. **(Applicant)**
2. Describe how – and how many – children will be staggered and enrolled in the Morning enrichment programs I, II, and III; Primary I and II; Elementary 1; Afternoon enrichment programs I and II; and Late afternoon enrichment program. Note how siblings or carpools of different aged children would work.
At the school's maximum capacity, 117 students will be staggered through out the course of 2 hours in the morning and 2-1/2 hours in the afternoon. Please refer to 'Springdale Montessori School Arrival & Departure Schedule' for detailed information.

Families who have both younger and older children will be able to choose the programs that best fit their schedule. There will be max. of 87 students who will be picked up from 3:30 pm-5:30 pm. On the positive side, families with one or more children would reaffirm the fact that 117 children do not equal 117 cars. **(Applicant)**

3. Describe the year-round use of the property as a child care center/school.
Springdale Montessori School's operational hours will be from 7:30 am-6:00 pm. Regular school programs including summer enrichment program in total will run 46 weeks every school calendar year. Applicants plan to have the regular school program from beginning of September through beginning of June.

The Applicants plan to have the summer enrichment program from beginning of June through mid July.

The property will be used for a Montessori school emphasizing place based education. Part of the Main Building (north-wing) might be used as an apartment for Head of School or a Teacher. Please see schematic drawings. and Special Exception Plat for more details regarding main building, barn, playground and parking. **(Applicant)**

4. Describe applicant's Montessori Certification, experience/history with operating a school, and their role once the child care center/school is operating.

The Nordahls are not educators by profession and therefore do not hold a Montessori teacher's certification. They are members of the Association Montessori Internationale (AMI), the American Montessori Society (AMS), and the North American Montessori Teachers Association (NAMTA). They intend to pursue a Montessori school certification.

Additional information regarding the Applicants:

Benny Nordahl - Oneness Family School: International Peace Academy, Chevy Chase, Maryland. Board of Trustee, Treasurer

The Swedish School for Children, Falls Church, Virginia
Board of Trustee, Vice-Chairman

*The Swedish Children's School in Falls Church is the largest Swedish school outside of Sweden.

Jane Nordahl - Completed Part 1 of the 'Montessori Whole-School Management (SM): A Professional Development Course for Teachers and Administrators' sponsored by NAMTA (North American Montessori Teachers Association). Part 2 will take place summer '09. Upon completion of Part 2, a certificate of completion will be issued.

Both Applicants have completed Virginia Department of Social Services Division of Licensing Programs' "Child Day Center: Phase I: Pre-Application/Orientation". Phase II of this two-part course will be completed before opening school.

The Nordahls currently have Andrew Kutt, Founder and Executive Director of Oneness Family School: International Peace Academy, as their educational advisor. Mr. Kutt's Montessori school is celebrating their 20th Anniversary this year. Advise and help from other well regarded and established Montessori educators and professionals are available to them if needed.

(Applicant)

5. Provide detail on anticipated opening date, food service, odor mitigation, trash disposal, and snow removal.

Opening: The Nordahls plan to open the school Fall of 2009.

Food: Children will bring their own lunches.

Odors: No odors need to be mitigated.

Trash: The trash will be disposed by:

1. Cleaning company- will service the school and will haul away trash.

2. Waste Management- their current trash collector.

Snow Removal: Snow removal will be handled by the landscape contractor currently servicing the property, Green Acres Lawn Care of Round Hill. They are a professional company that

currently provides lawn and snow removal services to many commercial businesses in the town of Purcellville. **(Applicant)**

6. Is Springdale Montessori a for-profit or non-profit venture?

Springdale Montessori is a for-profit venture.

(Applicant)

7. Describe how many, when, and for how long students will be outside, where outside they will go, and whether a noise study was conducted to measure the impacts of these students?

On a regular school day there will be no more than 30 students engaged in outside activities at one time. Springdale will follow the Commonwealth of Virginia Department of Social Services Standards for Licensed Child Day Centers, which mandates between 15-60 minutes/day of outdoor activity, depending on the length of the program. This translates into an estimated 180 minutes (3 hours) per day of outdoor activity when the school operates at full capacity of 117 students.

(Applicant/Staff)

8. Describe and fully detail any and all activities on the property outside the usual daily operation of child care center and school (ie, open house/parents night, graduation, parties, picnics, etc.) The school will conduct after-school events a few times per year. They will be limited in size and duration. For example an annual picnic, parent traffic safety education and new family open houses.

(Applicant)

V. SITE – EXISTING CONDITIONS

1. Describe the history of flooding on the property; whether children will be outside the fenced-in playground area; the safeguards of keeping children from the streams on the property; fence height.

Daily breaks will be limited to the designated fenced-in playground.

The only excursions outside of the play-ground area will be as part of the educational program, which means that they will be in small groups of children that are supervised at all times.

We have no knowledge of any flooding on the property. Normally there is a little water in one of the streams while the second is virtually dry. In the unusual case of extreme weather with very heavy downpour, the streams does fill up, but they do not cause flooding and they reseed quickly. We do not plan to have any outdoor activities during, or directly after heavy rainstorms. Springdale will comply with the weather policy of the Loudoun County public schools.

(Applicant)

2. Describe how entire house will be utilized on the interior. Will there be a separated residence there?

The lower level, first and second level will be used as classrooms. The two rooms on the third level will be used as offices for the Head of School and the teachers. The main building's sq. ft.

is approximately 8,060 sq. ft. The interior modifications are very limited and will comply with all applicable Virginia and Loudoun County codes and regulations as well as with the United States Department of Interiors guidelines for rehabilitation tax credits. The Nordahls are also exploring the option of becoming LEED (Leadership in Energy and Environmental Design) certified.

The north wing of the building may serve as a residence for the Head of School, or a teacher. If so, it will be separated from the school. **(Applicant)**

3. Describe how the barn will be used, the extent of renovations that would occur, the necessary permits/approvals needed to allow the barn to be occupied, safety of occupying the barn in relation to Lincoln Road.

The barn will be used for one class room. Interior work will include a complete renovation.

Exterior work will be subject to HDRC approval. **(Staff, Applicant)**

4. Describe the market study that shows demand for these uses. Where do they come from?

There are 6,764 families with children in the ages from 3 – 9 years old living within 15 miles from Springdale, there are 2,570 families with children in those ages living within 10 miles and there are 744 families within 5 miles. The area includes, Lincoln, Purcellville, Philomont, Aldie, Round Hill, Middleburg, Leesburg and many developments surrounding those towns. Before marketing and promotion has begun the school already has more than 70 interested families with over 100 children. Springdale Montessori School will have a unique location and curriculum, which is not offered by any other school in the area. **(Applicant)**

5. Were effects on the stream from the parking lot analyzed; what materials are being suggested, pervious or impervious?

It is not anticipated the parking lot will have any effect on the stream. The parking lot is planned to remain a pervious gravel surface. **(Applicant, Staff)**

6. Describe the status and operation of geo-thermal heating on the property.

The Applicants are evaluating geothermal heating. If chosen, it will comply with all applicable codes and regulations. **(Applicant)**

7. Describe the County review of septic and water capacities regarding the expected daily use of the proposed uses.

Applicants are in the process of completing compliance review for water and septic.

(Applicant, Staff)

VI. OTHER

1. Describe and detail any community meetings that were held – when, who attended, matters discussed, outcomes.

All adjacent neighbors were invited to individual information meetings during June-July of 2007. Mr. and Mrs. Hall, Mr. and Mrs. LeSourds and Mr. Clint Good accepted the invitations and meetings were held to inform them about the plans for the school and listen to their concerns. A phone meeting was held with Mrs. Diane Cummings. A follow up meeting was held with the Halls to discuss screening issues. A meeting and several telephone conversations were held with the Chairman of the Lincoln Community League, Mr. Phil Daley. The meeting was also attended by his wife Ellie.

A well attended community meeting was held on the Property on January 27, 2008.

The Lincoln community leaders were invited to meetings to discuss the benefits to the community of Springdale. A meeting was held with Mr. Phil Daley and Mrs. Jean Brown. The rest of the invitations were declined.

An invitation for a follow up meeting to discuss how Springdale Montessori School benefits our community was sent to all adjacent neighbors on September 16, 2008. The only reply so far came from the LeSourds, who rejected the invitation and suggested a meeting focused solely on reducing the size of the school.

The outcome of the meetings held to date has been limited, most attendees have been reluctant to discuss issues other than their concerns over traffic. We have worked hard to analyze the impact on traffic and to minimize it when possible by scheduling around peak hours and by designing traffic safety routines that makes the traffic flow in and out of the school, as well as within the school grounds, safe.

(Applicant)

2. Status of possible missing VDOT referral. **(Staff)**
3. Compare all facets of the proposed Montessori school to Lincoln Elementary school, based on 117 students. **(Staff)**
4. Provide information/background on Siena Academy (St. Catherine's Catholic Church, Great Falls), a Montessori school on a 2-lane road near a one-lane bridge. **(Staff)**
5. Provide RGP definitions of "rural character" and "village". **(Staff)**
6. Provide Fire/Rescue service provider and response time. **(Staff)**
7. Provide all background on the denied SPEX 1998-0026 Community Montessori (Sterling) school application.

(See binders from Citizen's to Preserve Lincoln Community, Volume 3, first tab)

8. Provide a flow chart of how a child care center/school is established.

The Applicants with the assistance of their educational consultant, have made a preliminary determination that Springdale Montessori School can be established within the appropriate regulatory guidelines. Applicants are pursuing the approval of their school one step at a time. The first step in this process is obtaining the necessary land use approvals, including the pending special exception. After the special exception has been approved, the Applicants with the continued assistance of their educational consultant, will obtain the remaining permits and certificates from the appropriate governmental agencies to operate the school. It is anticipated that the school will be open in time for the beginning of classes in September, 2009.

(Applicant, Staff)

9. Describe how lighting on the property will be provided in accordance with FSM Section 7.110(C) – site lighting for a commercial use serving the public after 5:00 pm. None has been specifically indicated.

Minimal lighting will be provided for parking lot safety and security during operating hours when natural light is insufficient. Applicants will submit a lighting plan with its site plan and comply fully with light limitations in the Facility Standards Manual.

(Applicant)

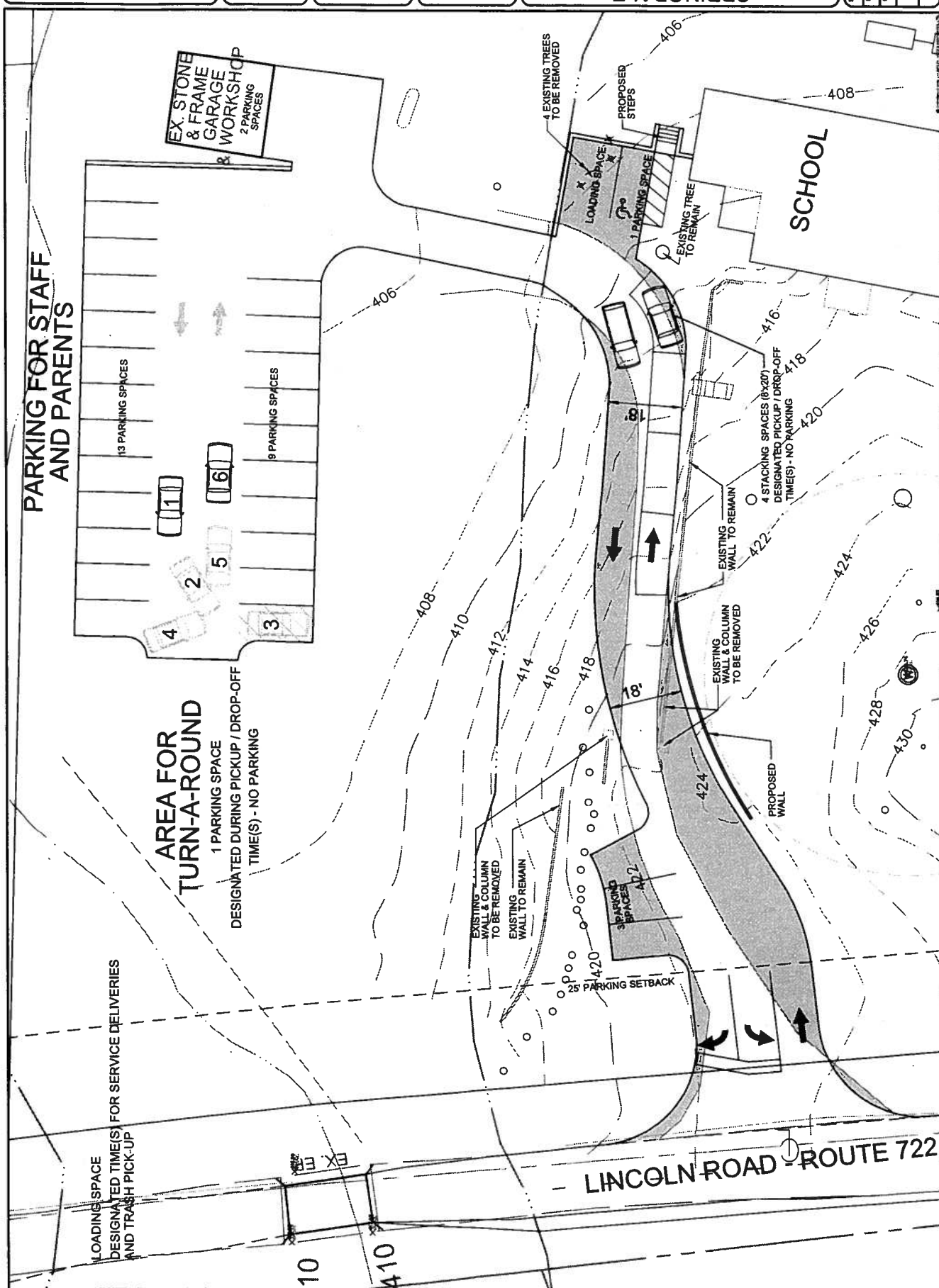
Table A
Springdale Montessori School
Site Trip Generation Analysis

Land Use	ITE ⁽¹⁾ Code	Amount Units	<u>AM Peak Hour</u>			<u>PM Peak Hour</u>			<u>Average</u> <u>Daily Traffic</u>
			In	Out	Total	In	Out	Total	
<u>Single Use</u>									
Private School ^(2,3)	534	117 Students	57	47	104	39	43	82	293
<u>Combination Use</u>									
Private School ^(2,3)	534	27 Students	13	11	24	8	8	16	67
Day Care Center	565	90 Students	38	33	71	37	42	79	404
Total		117 Students	51	44	95	45	50	95	471
Single use vs. Combination use			(6)	(3)	(9)	6	7	13	178
Percent Single use vs. Combination use					-9%			16%	61%

Notes: (1) Trip estimates based on rates and equations published in the Institute of Transportation Engineers Trip Generation, Seventh Edition.

(2) PM Peak hour reflects peak hour of generator which would occur before the commuter PM peak hour.

(3) ADT rate from ITE Land Use Code 536 (Private School K-12).



Springdale Montessori School arrival & departure schedule

Assumption Number of students 117 117 cars
Two children families 25% less 15 cars
Rideshare 15% less 9 cars

Net 93

Coming from South 28
Coming from North 65
Subtotal 93
Child care 72
Elementary 21
93

	South	North	Sum
Primary 1	7	17	24
Primary 2	15	33	48
Elementary	6	15	21
Subtotal	28	65	93
Morning enrichment program	15	36	51
After school enrichment program	12	19	31

Drop offs	School hours	Drop off time	From South	North	Sum	Drop off slots	Need	Available	Net
Morning enrichment program 1	8:00 AM - 9:30 AM	7:30 AM - 8:00 AM	5	12	17	17	17	20	3
Morning enrichment program 2	8:30 AM - 9:30 AM	8:00 AM - 8:30 AM	5	12	17	17	17	20	3
Morning enrichment program 3	9:00 AM - 9:30 AM	8:30 AM - 9:00 AM	15	36	51	51	51	60	9
Subtotal									
Primary 1	9:30 AM - 12:30 PM	9:00 AM - 9:30 AM	2	5	7	7	7	10	3
Primary 2	9:30 AM - 3:30 PM	9:00 AM - 9:30 AM	5	9	14	14	14	15	1
Elementary	9:30 AM - 3:30 PM	9:00 AM - 9:30 AM	6	15	21	21	21	25	4
Subtotal			13	29	42	42	42	50	8
Sum			28	65	93	93	93	110	17

Pick ups	School hours	Pick up time	To South	North	Sum	Pick up slots	Need	Available	Net
Primary 1	9:30 AM - 12:30 PM	12:30 PM - 1:00 PM	7	17	24	24	24	30	6
Primary 2	9:30 AM - 3:30 PM	3:30 PM - 4:00 PM	4	10	14	14	14	19	5
Elementary	9:30 AM - 3:30 PM	3:30 PM - 4:00 PM	5	12	17	17	17	18	1
Subtotal			16	39	55	55	55	67	12
Afternoon enrichment program 1	3:30 PM - 4:30 PM	4:30 PM - 5:00 PM	4	9	13	13	13	15	2
Afternoon enrichment program 2	3:30 PM - 5:00 PM	5:00 PM - 5:30 PM	4	9	13	13	13	15	2
Late afternoon enrichment program	5:00 PM - 5:30 PM	5:30 PM - 6:00 PM	4	8	12	12	12	15	3
Subtotal			12	26	38	38	38	45	7
Sum			28	65	93	93	93	112	19

Greeting capacity needed Arrival

2 every 3 minutes during non-busy time, which equals 40 per hour (20/half hour)
5 every 3 minutes during busiest 1/2 hour, which equals 100 per hour (50/half hour)

Departure

2-4 every 4 minutes during non-busy time, which equals 30-60 per hour (15-30/half hour)
5 every 4 minutes during busiest 1/2 hour, which equals 75 per hour (37/half hour)

Note the capacity is flexible and can be adjusted as needed to secure a smooth greeting process with no delays



Springdale

MONTESSORI SCHOOL

18348 Lincoln Road
Purcellville, VA 20132

Phone: 540-338-5527
Fax: 540-338-1275

Website: www.springdalemontessori.org

Parking, Arrival And Dismissal Guidelines

General

Springdale Montessori School is a responsible member of our community. We value good relations with our neighbors and the surrounding communities. In order to secure a safe and pleasant experience for our staff, parents, neighbors and fellow travelers on route 722 (Lincoln Road) it is of utmost importance that you understand, respect and strictly adhere to our parking, arrival and dismissal guidelines. A detailed discussion about traffic and parking safety on our first Parent Education night will take place to ensure your full understanding and commitment to our traffic safety program.

Traffic Flow

Route 722 (Lincoln Road) is a scenic byway. Our community recognizes this as an important part of our rural environment and cultural heritage. We expect all of our parents, teachers, staff and visitors to respect and strictly follow the posted speed limits as well as other signage.

Please follow these guidelines:

One-lane bridges are very safe if drivers are courteous and take reasonable precautions. When you approach the one-lane bridges slow down before you reach the bridge so you can stop in case you see an approaching vehicle from the opposite direction. Please respect the posted speed limits and remember that they are the maximum safe speed under ideal conditions. During rain, snow, fog, and after dark, it is advisable to go slower. Remember that in the winter the bridges may be icy even if the rest of the road is dry. Please give right of way to any vehicle that reaches the bridge before you. This does not however mean that you have automatic right of way if you are the first to reach the bridge. It is your responsibility to slow down and preferably stop until you have assured yourself that the other vehicle has stopped. If it does not stop, you should let it pass first. In the case there is more than one vehicle approaching at the same time, the smoothest way to navigate is to allow every second vehicle to pass from each direction. Most, but not all travelers on Lincoln Road adhere to this, which means that it is not your automatic right to drive once a vehicle from the other direction has passed the bridge. You must assure yourself that the road is clear before you go.

If you arrive to the school from the north:

When you come down Lincoln Road you will pass through the historic Village of Lincoln. Please adhere to the posted speed limit. The downhill means that you may have to use your breaks. Be helpful if anyone wants to cross the road or enter from one of the driveways. Follow the bridge guidelines above when you pass the two one-lane bridges. Please pay attention to the driveways that enter Lincoln road between the bridges. Once you have passed the second bridge make sure you use your left turn signal and pay close attention to any cars approaching from the other direction. We recommend that you come to a complete stop before you turn into the school property. If there should be another vehicle in front of you waiting to turn left, make sure you position your car to the right so cars approaching from the other direction can pass you safely. Once on the property follow the directions from the Parent Parking Committee.

If you arrive to the school from the south:

Please respect the speed limits and be helpful to anyone that wants to enter Lincoln road from a driveway along the road. When you approach the school use your right turn signal and slow down in time so anyone behind you clearly understands your intention to exit the road. Once on the property follow the directions from the Parent Parking Committee.

Parking, Arrival And Dismissal Guidelines (continued....)



Parent Parking Committee

The Parent Parking Committee (PPC) along with the Head of School will help regulate parking and traffic within the school property.

Parking

For normal daily drop-off and pick-up you are not expected to park. Our entry and exit lanes will accommodate day-to-day traffic volume and ensure a smooth, safe and quick traffic flow. The Parent Parking Committee will help direct traffic to avoid any back up. They will also guide you to the best parking space if you do need to park.

If you do need to park, you must use the designated parking spaces only. Parking is not allowed outside of the designated parking area. As you come into the school, please inform a member of the PPC

Arrival

In order to ensure a safe arrival and avoid any back up, you have been assigned an arrival time, which you must follow. A Drop-off and Pick-up schedule will be sent to you shortly before the start of every school year. The Parent Parking Committee and Head of School will help direct traffic. You must follow their instructions and drive with utmost care on and off the school property.

If you are running late please notify the school before arrival to make sure we are ready to accommodate you. When arriving late, do not immediately queue in the regular 'Greeting Lane'. A member of the Parent Parking Committee at the front entrance will properly guide you where to go. Please do NOT speed even if you are running late. Our school understands that sometimes it is unavoidable. Although it is very important to be on time, safety always comes first. Within the school property the speed limit at all times is 5 mph. No cell phone or PDA usage is allowed while your vehicle is moving within the school property.

Departure

You must follow these guidelines to ensure a smooth exit from the school:

If you are going south make sure you come to a complete stop before you enter Lincoln Road. Pay careful attention to cars approaching from both directions. We recommend that you only enter the road when it is completely clear in both directions.

If you are going north make sure you come to a complete stop before you enter Lincoln Road. Pay careful attention to cars approaching from both directions. We recommend that you only enter the road when it is completely clear in both directions. Please follow the bridge guidelines and respect the village of Lincoln.

Lincoln Road accidents

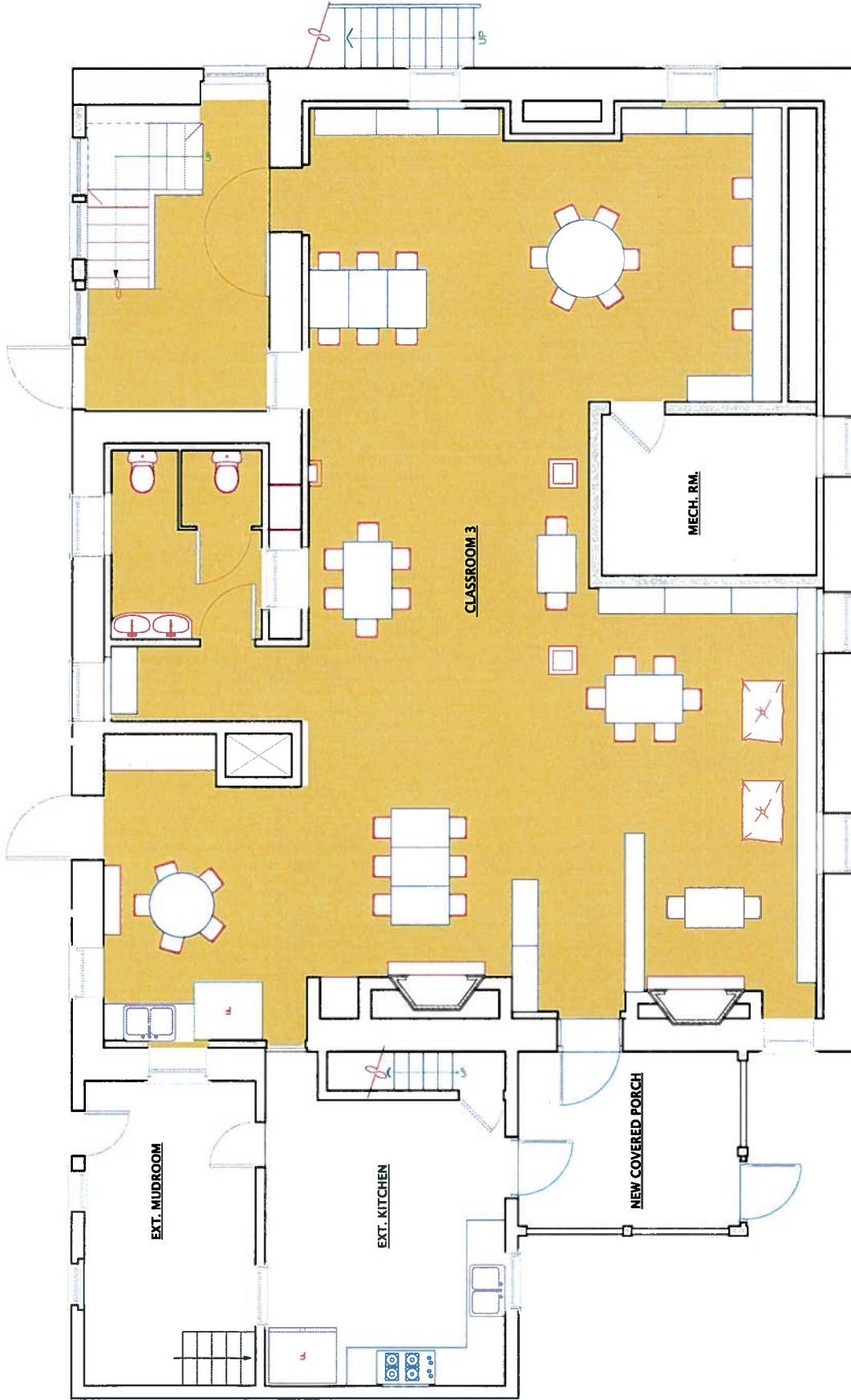
01/01-2002-10/15-2008

Address	Number	Comment
North Fork Rd	10	PD-02, PD-04, AA-05, PD-05, PD-05, PD-06, PD-07, PD-07, AA-08, AA-08
North Fork Bridge	1	PD-04
19883	2	PD-03, PD-05
19509	1	AA-05
19328	1	PD-06
19287	1	PD-07
19249	1	AA-02
18933	1	Just after Trillium Farm PD-07
Forest Mills Road Rd	4	PD-02, PD-05, PD-05, AA-06
18717	3	Equestrian Center AA-02, AA-04 PD-05
Hughesville Rd	8	PD-03, AA-04, PD-04, PD-05, PD-07 Deer, PD-07, PD-07, PD-08
18524	1	South of LeSourd property PD-03
18348	2	Springdale PD-02, PD-05
Chappel Hill Rd	3	PD-04, AA-07, PD-08
18295	1	PD-07
Village Border		
Sands Road	2	PD-04, 08-Deer
Foundry Road	1	AA-06
18196	1	Lincoln Post Office Hit & Run-02
18179	1	PD 06-Deer
18048	2	Lincoln Elementary School Hit & Run -05, PD-08
18035	1	Abernathy & Spencer Hit & Run-05
Village Border		
17888	2	Dogwood Farm AA-04, AA-05
Piggot House Place	3	PD-04, PD-05, PD-07
17757	1	AA-04
Purcellville		
Maple Avenue	1	PD-07
Sum	55	

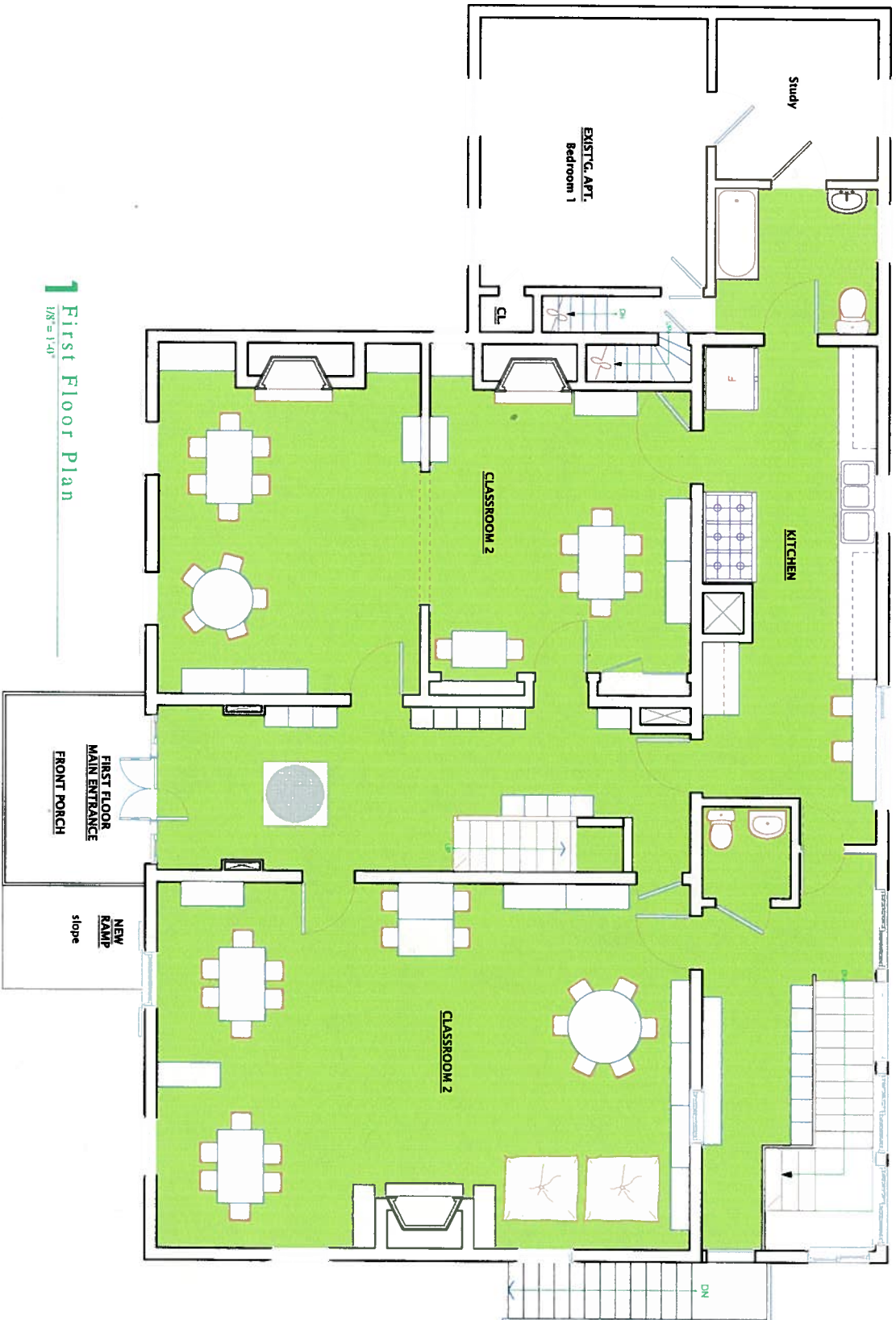
Total Lincoln Road					
Year	Property Damage	Auto Accidents	Deer Collisions	Hit / Run	Sum
2002	3	2	0	1	6
2003	3	0	0	0	3
2004	6	4	0	0	10
2005	9	3	0	2	14
2006	2	2	1	0	5
2007	9	1	1	0	11
2008	3	2	1	0	6
Sum	35	14	3	3	55
Average	5.0	2.0	0.4	0.4	7.9

Total Village of Lincoln					
Year	Property Damage	Auto Accidents	Deer Collisions	Hit / Run	Sum
2002	0	0	0	1	1
2003	0	0	0	0	0
2004	1	0	0	0	1
2005	0	0	0	2	2
2006	0	1	1	0	2
2007	0	0	0	0	0
2008	1	0	1	0	2
Sum	2	1	2	3	8
Average	0.3	0.1	0.3	0.4	1.1

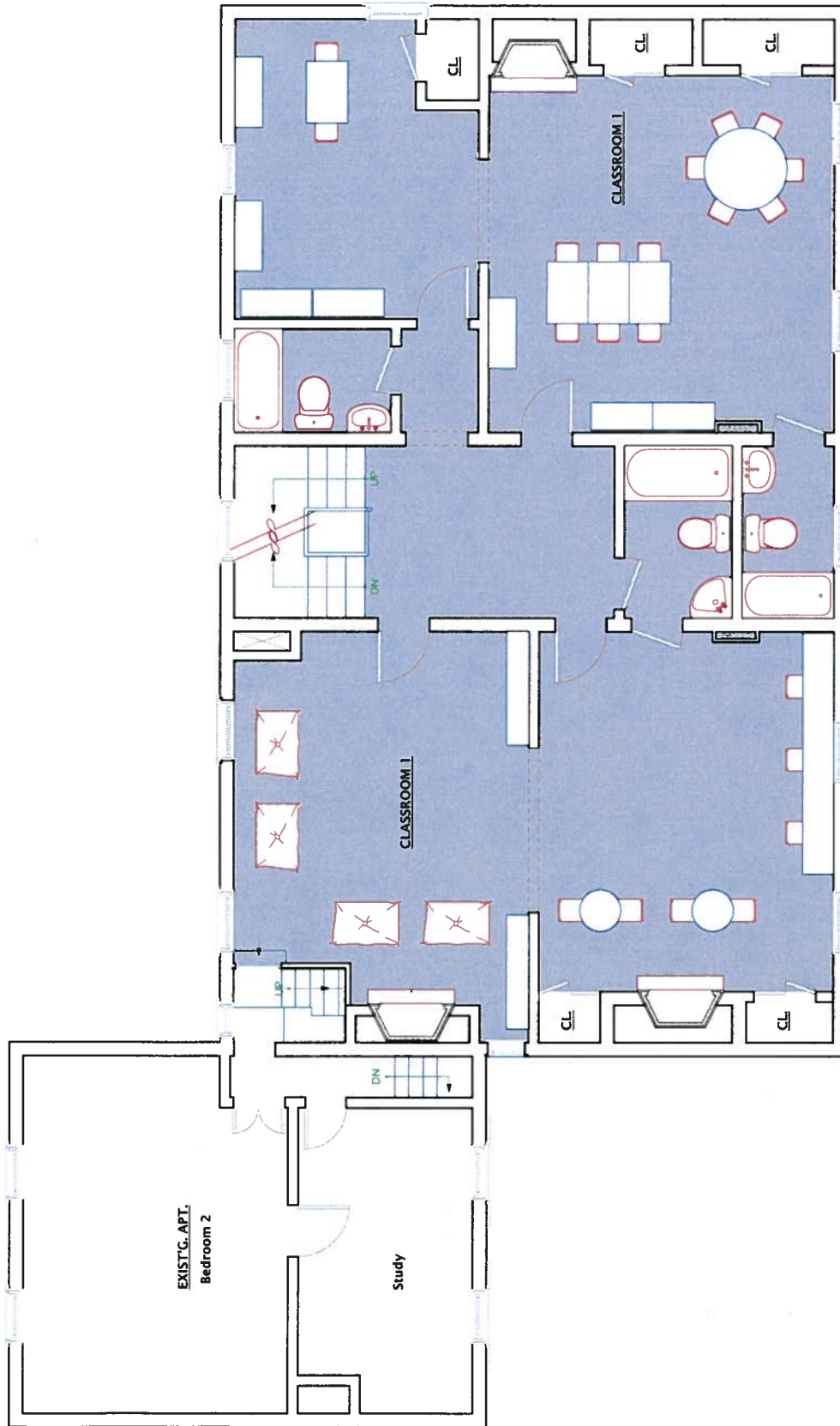
Comparison with Snickersville TPK & Silcott Springs Rd					Lincoln % of	
Year	Lincoln Road	Snickersville TPK	Silcott Springs Rd		Snickerssv	Silcott
2002	6	18	10		33%	60%
2003	3	23	12		13%	25%
2004	10	28	15		36%	67%
2005	14	27	9		52%	156%
2006	5	19	10		26%	50%
2007	11	21	4		52%	275%
2008	6	9	18		67%	33%
Sum	55	145	78		38%	71%
Average	7.9	20.7	11.1			



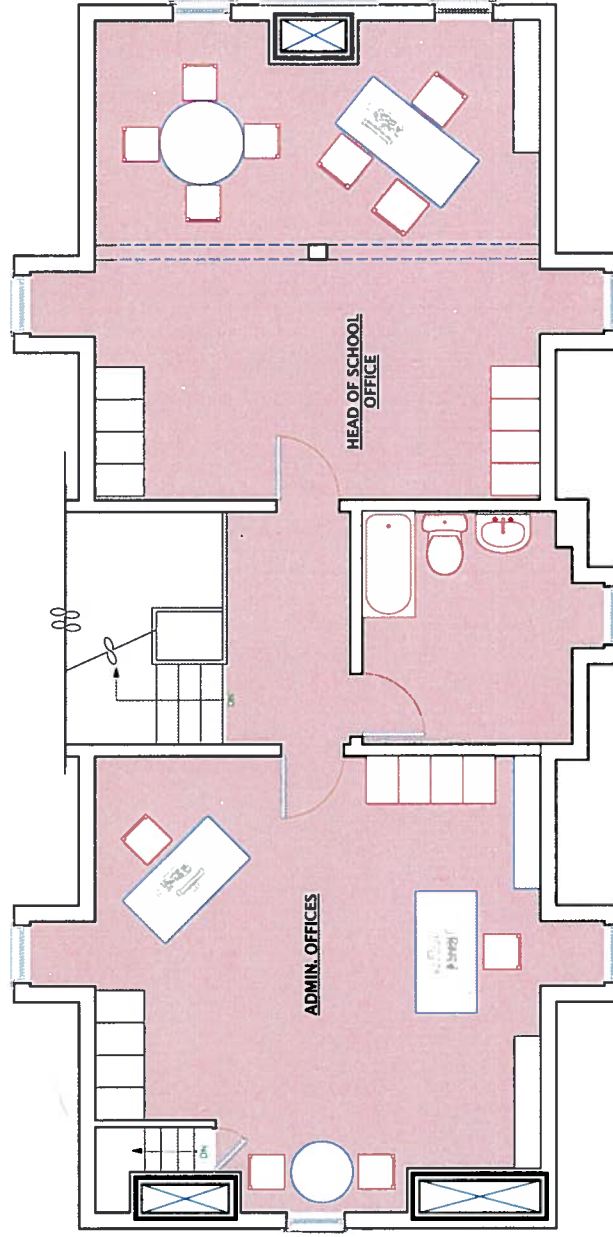
1 Lower Level Plan
1/8" = 1'-0"



First Floor Plan
1/8" = 1'-0"



1 Second Floor Plan
1/8" = 1'-0"



1 Third Floor Plan
1/8" = 1'-0"

**SPRINGDALE MONTESSORI SCHOOL
STATEMENT OF JUSTIFICATION
SPECIAL EXCEPTION**

September 11, 2007
revised through October 15, 2008



This Statement of Justification is submitted in support of the request for Special Exception pursuant to Section 6-1300 of the Loudoun County Zoning Ordinance (the "Zoning Ordinance") to allow a private school in the AR-1 Zoning District. Benny Nordahl and Mary Jane Nordahl, husband and wife, are the Applicants and Owners of the Property (the Applicants"). The parcel is located at 18348 Lincoln Road, Purcellville, Virginia, and is identified as follows: Tax Map 45 ((10)) Parcel 2 (PIN: 455-17-3739-000), containing 5.90 acres and is zoned AR-1 for agricultural and low density residential ("the Property"). This Special Exception seeks to establish a Montessori School in the AR-1 Zoning District.

BACKGROUND: Samuel M. Janney (1801-1880), a Quaker minister, well known educator, author, abolitionist, and historian, completed and opened the Springdale Boarding School in 1839. The School operated for approximately 22 years. Thereafter Springdale served many purposes including a makeshift hospital for both sides during the Civil War, a boarding house, private residence and from 1986 to 2005 operated as a private school and country inn under approved Special Exceptions (SPEX 1986-09 and SPEX 1986-49). Applicants wish to carry on the learning tradition for Springdale by re-establishing on the Property once again a fine learning institution in the form of a Montessori pre-school and elementary school.

Springdale is situated on 5.9 scenic acres of rolling lawns, extensive stonework, mature trees and gentle brooks. There are seven buildings on the Property. Those buildings are: a main house, a barn, a carriage house, a smoke house, a springhouse, an icehouse and a chicken house. The main house will be converted into classrooms, a library, computer room, administrative offices and storage. The barn will be converted into additional classrooms with computer stations in the loft and storage in the lower level. The chicken house will be demolished if it is determined that it has no historical significance. All buildings will be updated to meet all zoning requirements and the needs of a modern high quality Montessori School. This will include replacing the mechanical equipment, including a new environmentally friendly geothermal heating/cooling system, painting, addition of outdoor playgrounds, new safety fencing, landscaping, paving, widening of the driveway, updating handicap access as needed and child-friendly restrooms. Only minimal alterations are planned for the outside of the structures.

LOCATION: The Property is located at 18348 Lincoln Road, Purcellville, Virginia. It is bounded on the north by a parcel owned by Effie and Thomas Hall and a parcel owned by Clinton and Maryann Good. It is bounded on the west (across Route 722) by a parcel owned by the Michael and Jill Schilling and a parcel owned by John Gabriel. It is bounded on the south by a parcel owned by the LeSourd Family, LP and a parcel owned

by Jeffrey and Nancy LeSourd. It is bounded on the east by a parcel owned by Dianne Cummings. All of the adjoining parcels are zoned AR-1.

ZONING AND USE: The zoning on the Property is AR-1. The Property is currently used for a private residence by the Applicants. The proposed use is permitted by special exception under Section 2-102 of the Loudoun County Zoning Ordinance.

COMPREHENSIVE PLAN: The Property is located in an area identified in the Comprehensive Plan as being in the Rural Policy Area. As stated in the Land Use Patterns and Design Strategy for the Rural Policy Area, the County supports the creation of opportunities for institutional activities that preserve the rural character and are compatible with the dominant rural land use pattern in the Rural Policy Area. Appropriate uses include private schools that are located in existing historic and /or agricultural structures, such as the use proposed by the Applicants.

PROPOSED USE: The Applicants propose to convert the existing buildings into a first class Montessori School offering quality primary classes for ages of three to nine years to meet the needs of Loudoun County's growing pre-school and school-age population. The school will have an enrollment of up to 117 children. It is anticipated that there will be 60 preschool students and 57 students in the kindergarten through elementary grades.

The school will operate 42 weeks a year. Applicants propose to have two major curriculum programs. The first program will start at 9:30 AM and end at 12:30 PM. The second program will begin at 9:30 AM and end at 3:30 PM. In addition, there will be morning and afternoon enrichment programs for a limited number of students that will supplement the core curriculum programs. The morning enrichment programs will be from 7:30 AM to 9:30 AM and the afternoon enrichment programs will be from 3:30 PM to 5:30 PM.

SECTION 5-609(B) CRITERIA: The facility which the Applicants propose is a Montessori school which is permissible by special exception in the AR-1 District. Its primary purpose is instructional. A school is defined by the Zoning Ordinance as follows:

“School (elementary, middle and high): An establishment which provides any kindergarten, primary, and/or secondary educational course, but not including an establishment *primarily* for the instruction of adults, a day care establishment, a child care center, a child care home,” (emphasis added)

The proposed use is not primarily for a day care establishment. Therefore, Applicants submit that the use fits the definition of a “school” and “child care center.”

The Zoning Ordinance defines “Child Care Center” as:

“A licensed establishment which offers care, protection and supervision for compensation to more than nine (9) children at a time during any twenty-four (24) hour period, and then only for part of any twenty-four

(24) hour day. A child care center may include nursery schools, kindergartens or other facilities for which the purpose is primarily educational, recreational, or medical treatments.” (emphasis added)

The use is both a school and child care center. The primary function of the proposed use is a school for instruction of children from nursery school to nine years of age or third grade.

The application satisfies the requirements of Section 5-609(B).

SPECIAL EXCEPTION STANDARDS FOR APPROVAL: The Applicants respectfully submit that the proposed special exception on the Property meets or satisfies the standards criteria set forth in Section 6-1310 of the Revised 1993 Loudoun County Zoning Ordinance.

- The proposed special exception use is consistent with the Comprehensive Plan.
- The proposed special exception use will adequately provide for safety from fire hazards and will have effective measures of fire control.
- The noise level of the proposed special exception use will not negatively impact the uses in the immediate area as by nature of the Montessori methods, most activities are indoors. The use of the outdoor playground is located behind the building with natural shields by lush trees and vegetation and surrounded by hills.
- The proposed special exception use will not generate glare or light and will not negatively impact uses in the immediate area.
- The proposed special exception use is compatible with other existing uses in the neighborhood and adjacent parcels.

- There is sufficient existing landscaping, screening and buffering on the site and in the neighborhood to adequately screen the surrounding uses. Applicants are proposing only minimal tree removal on the site in connection with this special exception. Applicants will consult with the County Forester, at Site Plan stage, to determine the appropriate clearing of immature scrub vegetation or debris. Additional screening could be added if needed.
- The proposed special exception use will have no impact on preservation of topographic or physical, natural, scenic, archaeological or historic features.
- The proposed special exception use will not damage existing animal habitat, vegetation, water quality (including groundwater) or air quality.
- The proposed special exception use at this site will contribute to the welfare and convenience of the public by providing a quality school.
- The traffic expected to be generated by the proposed use will be adequately and safely served by existing roads.
- The conversion of the existing structures for the proposed school use will meet all code requirements of Loudoun County.
- This site will be served by a public non-community well and drain field.
- This special exception use will have no adverse effect on groundwater supply.
- The proposed special exception use will have no adverse effect on the structural capacities of the soils.
- The special exception use will not negatively impact the orderly and safe road development and transportation.
- The proposed special exception use will provide desirable employment and enlarge the tax base by encouraging economic development activities consistent with the Comprehensive Plan.

- This special exception takes into consideration the needs of agriculture, industry, businesses educational opportunities in future growth.
- Adequate on and off-site infrastructure is available.
- The proposed special exception use will not generate odors which may negatively impact adjacent uses.
- The proposed special exception use will utilize sufficient measures to mitigate the impact of construction traffic on existing neighborhoods and school areas.

TRANSPORTATION/PUBLIC IMPROVEMENTS: No transportation or public improvements will be required by this special exception. Applicants have agreed to pavement widening and signage on Route 722 as described in the following paragraph.

TRAFFIC IMPACT: The impact on the traffic flow on Route 722 will be minimal due to the variety of individual schedules offered by the school. The school will follow the Loudoun County inclement weather policy which means that the school will be closed when the road conditions are unsafe. Buses for student transportation will not be utilized. Additionally, Applicants have submitted a revised Traffic Study prepared by Wells & Associates which was completed using standard Institute of Transportation Engineers (ITE) rates considering the full student program. The revised Traffic Study shows that the Average Daily Traffic ("ADT") on Lincoln Road (Route 722) is 1,534 and the Site Vehicle Trips (VPD) is estimated to be 104 trips during the AM peak, 82 trips during the

PM peak, and 293 average daily trips. Since the school plans to have different programs that stagger attendance, the traffic analysis serves as a conservative estimate of the transportation impacts. To enhance safety in the pick up and delivery area, the entrance to the Property and on Route 722, Applicants intend to have a traffic safety program as part of the parent education program. Applicants have submitted an illustrative drawing that depicts improvements to Route 722 that Applicants have agreed to make including lane widening, signage and striping.

PUBLIC UTILITIES: The Property is served by private well and drain field. Current service to the Property is adequate to serve the Property and the proposed use.

CONCLUSION: The Applicants propose to return Springdale to its original use by converting it into a Montessori School offering quality primary classes for children ages of three to nine years. The unique historic, scenic, safe, and yet convenient location close to several major developments makes it an ideal venue for an educational institution. This would also ensure that Springdale remains an active, well-maintained and important historic landmark, which will contribute to the Goose Creek Historic District and add value to the current and future residents of and visitors to Loudoun County and the Lincoln Historic Village. The use proposed by the Applicants is compatible with the Comprehensive Plan Policies for the Rural Policy Area. The Property was lovingly

designed and built by Samuel M. Janney and other members of the local Quaker community as a learning institution. Returning it back to its original use with minimal alterations to the exterior of the existing structures, will preserve an important piece of Loudoun County history for future generations. The project will help Loudoun County meet the demands of its growing population of under five and school age children for quality educational opportunities and will also add local job opportunities and tax revenue to the County. Accordingly, the Applicants respectfully request the Planning Commission and the Board of Supervisors approve this Special Exception application.

Respectfully submitted,
BENNY NORDAHL AND
MARY JANE NORDAHL

By: Counsel



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Counsel for Applicants

Chapter 7

Rural Policy Area

General Characteristics

The Rural Policy Area includes all of the western part of the County outside of the Towns, as well as Joint Land Management Areas (JLMAs) around certain Towns. The southern, western, and northern boundaries are the County's shared borders with Prince William, Fauquier, and Clarke counties, and with the West Virginia and Maryland's Potomac River boundaries. The policy area's eastern boundary, immediately adjacent to the Transition Policy Area, is defined by a combination of Leesburg's town boundary, the Dulles Greenway, Route 621, and the Broad Run watershed boundary. (Refer to Rural Policy Area Map, pg. 7-3)

The Rural Policy Area is the largest of the County's three policy areas. It encompasses 227,904 acres, representing about 67 percent of Loudoun County's total land (333,558 acres). Six of the County's seven incorporated Towns are located completely in the Rural Policy Area. They are Hamilton (population 562), Hillsboro (96), Lovettsville (833), Middleburg (632), Purcellville (3,584), and Round Hill (500). Purcellville's population increased by 67 percent while the other Towns remained relatively stable in the 1990s. Purcellville is continuing to grow as a result of annexations for largely suburban-style developments and the Round Hill area's current growth is attributable to the 1,100-unit Villages at Round Hill project.

The Rural Policy Area also includes twelve villages of the thirteen Existing Villages in the County (also see Chapter Ten). These villages, which have churches, schools, convenience stores, fire stations, post offices and community centers, serve as community focal points for the rural area. Three new rural villages were approved by the County during the mid 1990s for a total of 851 dwelling units on 2,496 acres.

The Rural Policy Area contains large and small farms, producing a variety of products, vineyards, bed and breakfast lodging, home-based and other businesses. The 7,000 dwelling units in the Rural Policy Area are in crossroads settlements, in A-3 and A-10 subdivisions, and on large and small farms dispersed throughout the Rural Policy Area. The gross density of the rural area outside of the Towns, JLMAs, and villages is one dwelling unit per 26.8 acres. More concentrated rural residential development has located around Lovettsville, Philomont, and in the Route 7 corridor at densities of one unit per four to five acres. (Refer to Rural Parcels Under 12 Acres Map, pg. 7-5)

The Loudoun Valley, located between the Blue Ridge, Short Hill, and Catoclin Ridge, has rich soil that not only makes it good for agricultural production, but also for the location of septic fields which encourages residential subdivision. Two parts of the Rural Policy Area are comprised of very large parcels averaging one dwelling unit per 32 acres. One is the area north of Leesburg noted by the unique limestone conglomerate feature; the other is south of Philomont which is characterized as the center of the equine industry.

Policy Background

Loudoun County has long recognized the value of retaining the Rural Policy Area as the location of a 240-year-old farming community. These farms and communities are important economic, scenic, and historic resources. However, new residential subdivisions have developed alongside the farms and traditional villages at accelerating rates that now pose a threat not only to land and other natural resources, but also to the rural economy and the area's centuries-old rural character. Residents throughout the County are concerned about keeping rural Loudoun a vital, identifiable place. Loudoun County for almost two decades has worked to protect this valuable rural resource.

The A-3 zoning, which allows one house on 3 acres, was established in 1959 to allow farmers to break off individual home sites in order to raise capital for their working farms. No one imagined at the time that traditional farming in Loudoun County would be replaced by a sprawl pattern of 3-acre lot development on the hills and pastures of former farms. Since then the County has adopted a variety of plans and policies to preserve the rural area without changing the underlying A-3 zoning. All of these efforts have failed to slow rural residential development.

In 1984, the Board of Supervisors adopted the *Rural Land Management Plan* (RLMP) to "guide future rural land use changes, increase the opportunities and choices of farm-land owners, establish a healthy and affordable pattern of growth in the rural areas, and conserve irreplaceable agricultural and environmental resources".¹ (RLMP, p. 1) It established Urban Growth Areas (UGAs) around the County's seven incorporated Towns in the hope that new residents and public facilities would locate there and theoretically enable large amounts of open land to be preserved for farming and for maintaining the area's rural character. The plan offered landowners a variety of voluntary conservation measures that included clustering development, leasing of easements, and transferring development density but none were used extensively. Within four years of the adoption of the *Rural Land Management Plan*, one-third of the countryside had been re-platted into lots smaller than 12 acres.

In July 1988, the Board of Supervisors adopted a "Vision for Rural Loudoun" that introduced the concept of clustered development in a traditional pattern of small hamlets and new rural villages surrounded by farms and forests, similar to the pattern of Loudoun's historic settlements. It was hoped the clustered development pattern would replace 3-acre lot subdivisions and accommodate residential development that would not eradicate the County's treasured landscape and rural heritage.

The 1991 *General Plan*, which superseded previous County planning documents, continued to promote clustered hamlets and villages, as well as voluntary residential development options such as: New Rural Villages, Rural Hamlets and Large-lot/Low-density Subdivisions with 25- to 50-acre lots as the most preferred. However, the Plan did not change the zoning or address the escalating conversion of productive farmland to residential uses.

Rural residential development has accelerated rapidly since the mid-1990s with the opening of the Dulles Greenway, which has provided convenient access to employment centers in the east. This activity is destroying the rural landscape and negatively affecting natural resources, consuming rich agricultural soils, jeopardizing the rural economy, stressing rural road capacities and raising concerns about groundwater potability. It is also diverting limited public resources away from areas planned by the County for growth.

Between 1993 and 2000, the County received 158 applications to rezone or subdivide more than 26,600 acres in the Rural Policy Area. The landowners requested densities to allow more than 3,400 units on that land. The pace of development activity in the rural area increased between 1999 and 2000, when the

¹ *Loudoun County Rural Land Management Plan*, 1984, page 1

County received 74 applications to allow up to 1,714 dwelling units on more than 9,528 acres. If the conversion of rural land to residential uses were to continue at the pace experienced in the last two years, almost half of the Rural Policy Area (100,000 acres) would be in residential use by 2020.

In the Rural Policy Area, there is the potential for 14,045 additional housing units, including 1,503 units in the pipeline. It is anticipated that by the end of the twenty-year planning period, 7,564 housing units will have been absorbed, and a total of 14,964 housing units will exist. At that time, the Rural Policy Area is projected to have a population of 44,003 persons, an increase of 98 percent over the 2000-population estimate.

A recent analysis of the potential build out of rural Loudoun under the 1991 *General Plan* revealed that rural land outside of the Towns and their JLMAs could accommodate over 58,000 dwelling units that would add billions of dollars in public costs. The *Revised General Plan* seeks to overcome the deficiencies of previous planning efforts, while providing a range of incentives to facilitate the implementation of the new rural strategy.

Land Use Pattern and Design

The Rural Policy Area land use pattern and design strategy is fundamentally committed to retaining the rural area as an essential asset of Loudoun County. The strategy sets forth policies that recognize the interdependence of the key elements of rural development. For a decade, the County has counted on a variety of voluntary development options and incentives to entice desired development patterns, rather than directing development into specific patterns to protect the Rural Policy Area. The County is now refocusing its plan for rural Loudoun to achieve many of the same objectives of the 1991 *General Plan* that have been unobtainable under the old approach. The *Revised General Plan* represents a significant shift in strategy due to the area's changing circumstances, which include the decline of traditional farming and the rapid conversion of agricultural land.

There must be a viable rural economy to preserve the rural landscape. The rural economy is much more than traditional farming, now in decline. It includes innovative agriculture, horticulture, forestry, commercial and non-commercial equine industry, other forms of animal husbandry, tourism, rural based public and commercial recreation, ancillary rural business and compatible rural institutional uses. All of these sectors are growing and collectively contribute significantly to Loudoun's economy and provide several thousand jobs. The County's suburban citizens benefit from the proximity of rural based activities and services and the rural enterprises benefit from the suburban markets for goods and services.

To help agriculture continue as a long-term use in the Rural Policy Area, the County will support voluntary participation in programs that provide assistance and reduced tax burdens to the farm community. Such programs as the Land Use Valuation program, the Agricultural and Forestal District Program, the Purchase of Development Rights program, and the formation of conservation tax districts will be used to encourage land-owners to use their land to expand the rural economy rather than to convert it to residential use.

The Plan recognizes the failure of previous County efforts to control rural residential growth and proposes new policies, incentives and supporting regulations that will lower overall densities, while providing balance and flexibility in terms of land use and design. Future residential development should be clustered to protect groundwater resources, preserve open space and the Green Infrastructure, enhance the rural economy, and reduce potential congestion on rural roads.

The preservation of the Rural Policy Area's unique Green Infrastructure includes the preservation of the physical environment of public open space and trails, stream valleys, floodplains, wetlands, and mountainsides as well as the scenic byways and vistas, historic and archaeological sites. The rural economy

directly benefits from the protection and enhancement of the Green Infrastructure and it contributes to the quality of life of all of Loudoun's citizens.

The Plan strategy seeks protection of groundwater resources that supply all of the towns and homes in rural Loudoun. Whether or not continued residential growth will seriously deplete groundwater supplies (and surface water stream flows) is an open issue. The failure of groundwater supplies and/or extensive contamination, however, will destroy property values and lead to enormous additional costs to homeowners and taxpayers. A prudent policy is required to minimize these uncertainties and risks. The County encourages the use of communal water and wastewater treatment systems and a combination of alternative systems to serve clustered developments. Use of these systems will also help protect groundwater resources and provide opportunities for institutional and business uses to locate in the Rural Policy Area.

Protecting the rural character and scenic quality of rural roads is fundamental to the rural strategy. Citizens and public officials have continued to voice concerns about the impact of rural residential development on existing roads that may not be able to safely or effectively handle additional traffic. Simply stated, the County's rural roads and 3-acre lot subdivision pattern in rural Loudoun are incompatible. Further, with more than 300 miles of dirt roads in Loudoun's countryside, and the two-lane nature of the rural area's paved roads, state or County funding is not available or sufficient to improve them to meet traffic demands associated with 3 acre lot residential density. Any limited road-improvement funding the County does obtain must be applied to address traffic concerns in the Suburban Policy Area. As such, the County will not support the destruction of the scenic, rural roads, or the negative impact that such destruction would have on the rural economy to increase road capacity.

Land Use Pattern and Design Strategy Policies

1. The County values the rural character of the Rural Policy Area, formed by the elements of the Green Infrastructure and the working landscape, and will protect it by supporting and enhancing the rural economy through regulations in the land development ordinances.
2. The County recognizes that the vitality of the rural economy and the rural way of life require the protection and enhancement of the County's Green Infrastructure. The County will protect its natural and cultural-resource base (including stream corridors, wetlands, steep slopes, ridges, mountains, working landscapes, woodlands, historic and archaeological resources, habitats, greenways, trails, reservoirs and public facilities) in order to preserve the rural character of the land and the social and experiential aspects of the rural way of life.
3. The County will protect its land resources for farming, bio-agricultural industries, vineyards, Christmas trees, forestry, nurseries, fruit and specialty vegetable production, and other innovative agricultural uses that contribute to the rural economy, as part of an overall rural economy strategy by reducing substantially the County's development density, thereby increasing the investment potential and attractiveness of agricultural land for families and businesses.
4. The County will preserve agricultural land, natural resources, open space and historic landscapes through the implementation of the Purchase of Developments Rights Program, the Agricultural and Forestal District Program, conservation-design regulations and other land use programs.
5. The County will facilitate and promote programs that support the expansion of equine-related businesses, non-traditional businesses, and direct-market rural businesses such as orchards, vineyards, nurseries, flower farms, and commercial stables, that generate rural tourism and enhance the overall rural economy while preserving rural character.

6. The County supports the creation of a variety of opportunities for rural commercial, industrial, employment, and institutional activities that preserve rural character and that are compatible with the dominant rural land use pattern in the Rural Policy Area. Rural business uses will meet established performance criteria, including traffic capacity limits, employee limits, meet site design standards (i.e., buffering, use intensity, siting, architectural features) and pose no threat to public health, safety and welfare. Appropriate uses include bed-and-breakfast enterprises, country inns, rural retreats and resorts, private camps and parks, farm markets, wayside stands, small businesses, rural corporate retreats, small corporate office and training facilities, bio-tech research facilities, private schools or medical facilities, private conference centers, meeting facilities, and similar types of uses. Where possible, such uses should locate in existing historic and /or agricultural structures.
7. The County supports its "Right to Farm" policy to protect existing farms and farmers from nuisance complaints from neighboring rural residents. The County will develop zoning standards, other legislation, and educational programs designed to reduce potential conflicts arising from the proximity of agriculture to residential development.
8. The County supports the Rural Policy Area as a permanent rural landscape, a unique composite of natural and man-made environments, farms and forestal areas, natural areas and wildlife habitats, villages, and hamlets. The County will permit development in the Rural Policy Area that promotes opportunities for the expansion of rural economic uses, open space, farms, historic and natural areas, forests, the Green Infrastructure, and protects the rural character of the landscape.

The Rural Economy

The preservation and enhancement of the rural economy is a central focus of the rural strategy. The Rural Policy Area's land base supports a wide array of agricultural enterprises, as well as the majority of the County's local tourist attractions, wineries, small retail and service establishments, home-based businesses, and some light industry. This kind of broad-based rural economy has been a net-revenue generator for the County because tax revenues generally exceed expenditures for rural populations. The County recognizes its fiscal responsibility to protect the land resource for the rural economy, to provide fundamental protection for rural businesses, to ensure prudent fiscal management of limited public resources and to provide needed protection of the public health and safety.

The Rural Policy Area enterprises include crop and cattle production, the equine industry, vineyards, wineries, specialty farm products such as Christmas trees, farm stands, fruits, vegetables, flowers, herbs, dairy products, locally produced organic food products. Visitor experiences such as farm tours, picnic areas, nature trails, hayrides, pony rides, animal petting areas, pond fishing, and arts and crafts sales are also important elements of the rural economy. Farm-supportive businesses in the area include blacksmiths, veterinarians, farm equipment and feed stores. Commercial enterprises dependent on the area's rural atmosphere include bed-and-breakfast inns, corporate retreats, camps and lodges.

These rural enterprises are land based, and their survival depends on what happens to that valuable resource. The 1998 report, "The 200,000-Acre Solution," recognized this symbiotic relationship, stating that "unless the best, most appropriate land is reserved for rural enterprises, in part by curtailing residential development, there can be neither sustainability of the current rural economy nor growth of its various components." That report by the Rural Economic Development Task Force called on the County to preserve the rural economy's natural resource base, and the Board of Supervisors, in adopting the document, called protection of the rural area its top priority.

The equine industry is a major component of the rural economy. It is the largest agricultural employer in Loudoun County, and its barns, stables, and rolling pastureland are valuable components of the Rural

Policy Area's unique character. The Marion du Pont Scott Equine Medical Center, near Leesburg, is one of the nation's leading veterinary research, teaching, and treatment centers. The Virginia Tech Middleburg Agriculture Research (MARE) center which is dedicated to horse forage research and established in 1949 is partially located in Loudoun. In addition, Loudoun County is home to several major equine associations, including the Virginia Horseman's Association, the American Academy of Equine Arts, the National Sporting Library, Chronicle of the Horse, Middleburg Training Center, the Masters of Foxhounds Association of America, and the U.S. Combined Training in Leesburg. The equine industry should be afforded the same benefits and encouragement extended to other forms of local agriculture. This industry has also felt the effects of growth and development. Several Loudoun-based equine events are no longer held in Loudoun because of the lack of facilities (e.g., the Middleburg Classic Horse Show and the Loudoun Pony Show). The preservation of personal and commercial equestrian pursuits is important to maintaining the rural character that makes Loudoun County a beautiful place to live and to visit.

The success of the rural tourism industry depends on the preservation and enhancement of the County's rural character, specifically its natural and cultural resource base. Most of the attractions that draw tourists to the County are located in the Rural Policy Area and the area's unique sense of place and nostalgia enhance the authentic rural experience. Primary attractions in the policy area are the historic Towns with their restaurants, specialty shops, and festivals; other historic sites; Christmas tree farms and other farms that market directly to consumers; wayside stands; wineries; plant nurseries; bed-and-breakfast inns; and recreational activities and special events. Bed-and-breakfasts alone account for \$4.5 million a year in tourist dollars. However, there is room for expansion in this and in other sectors of the tourism industry. With so much untapped potential, rural Loudoun should be seen as ripe for investment and reinvestment.

The County recognizes that traditional farming is in decline. This classification of land in the County declined from 206,600 acres in 1987 to 184,988 in 1997 according to the U.S. Census of Agriculture. The number of individual farms grew during the period from 934 to 1,032 but farming was the principal occupation of fewer than 40 percent of those occupying the land and only 5 percent of the farms yielded annual sales in excess of \$100,000. Nevertheless, the Plan seeks to encourage the retention of traditional farming through fiscal and other incentives.

In addition to protecting the land resource, the County will undertake several initiatives to enhance the rural economy in the coming years. As explained in the following policies, some of that support will be in the form of tax incentives and streamlined regulations. The rest will be through the creation of new programs and services to support this valuable component of Loudoun's economy.

Rural Economy Policies

1. The County will foster and expand the diversity and richness of the rural economy through a variety of policy, regulatory, incentive-based, and programmatic approaches and will protect the rural resource base, including open, farmable land; all elements of the Green Infrastructure; historic and agricultural structures; and the rural character features necessary to advance the rural economy.
2. The County supports its rural tourism industry through the preservation and enhancement of the County's unique rural character, specifically its Green Infrastructure and cultural resource base and will protect this rural character to help to achieve the County's economic, as well as social and environmental goals.
3. The County will support the rural economy by facilitating the development of rural businesses that are compatible in scale, use, and intensity with the rural environment and preserve large areas of land to be used for agriculture, forestry, and viticulture. The Zoning Ordinance will include innovative types of agricultural uses. New programs and amendments to the Zoning Ordinance will permit flexibility in

the sale of farm products and related auxiliary products, provide more alternatives to promote rural tourism; and provide opportunities for rural conference or retreat centers, private camps and parks, and similar kinds of low intensity, rural land uses subject to the capacity of rural roads, groundwater, and limited employment generation.

4. The County will allow a range of on-farm uses by right on working farms to allow a rural property-owner access to additional sources of income to supplement revenue from agricultural products, subject to performance criteria. Such uses will include small businesses that are a logical extension of the farm use, including farm product sales and services related to agriculture (i.e., farm co-ops, wayside stands, welding services, farm machinery repair, rental and leasing), to provide economical and convenient services to the rural economy, and to provide for the operation of home-based businesses that are compatible with the rural landscape. Such uses will be compatible in scale, size, and intensity with the primary agricultural use and the rural environment, and will be subject to performance standards.
5. The County will help increase available capital for the expansion and/or upgrade of farm operations by working with community banks to develop an agricultural linked-deposits program.
6. The County will facilitate the expansion of rural hospitality businesses, such as bed and breakfasts and country inns, which preserve the rural character while offering services that support rural tourism.
7. The County will prepare an expedited special-exception process at reduced costs for certain uses in the Rural Policy Area, if feasible.
8. The County supports the development of businesses necessary to support the County's agricultural and equine industry, including agricultural equipment sales, rental, and repair services, veterinary services, product storage, and seed supply.
9. The County recognizes both the commercial and recreational equine industry as a fundamental component of the rural economy and will promote its expansion. County ordinances will be amended to reflect the current practices and needs of the industry.
10. The County will encourage an environment supportive of the ownership and boarding of horses, for both commercial and recreational use, by promoting land development practices that preserve large tracts of land appropriate for grazing, growing hay, and riding horses. The County will also provide tax incentives such as expanding the Land Use Tax Program to include all sectors of the equine industry.
11. The County will facilitate public accessibility to recreational equine activities and participation in the equine industry by establishing a trail network, show ring, cross country course, exercise ring, or other related features in at least one County park. These activities may be supported through partnerships with nonprofit entities such as the 4-H program and the private sector.
12. Because the expansion of equestrian activities in the County is dependent on having expansive, pleasant places to ride, the County will encourage rural development proposals to provide easements for the creation of an equestrian trail network. The backbone of this trail network will be the W&OD Trail and planned trails that will be funded through a range of public and private contributions.
13. The County will seek to expand Agricultural and Forestal District eligibility to include acreage used for equine-related activities, such as stables, training and racing facilities, and breeding farms.
14. New non-rural commercial uses that are not compatible with the dominant agricultural land use pattern will be allowed to locate only in the Towns. The County may permit non-agriculturally related commercial uses by special exception in the Rural Policy Area if the use is agriculturally and rurally

compatible in scale and intensity, poses no threat to public health, safety and welfare, and if the use helps to preserve farmland and open space and continue agricultural operations.

15. The County will modify the by right and special exception uses provided in the Rural Commercial zoning district to those appropriate to the rural land use policies of this plan. The County will also evaluate and inventory existing commercial districts to determine consistency with the objectives for commercial services in the Rural Policy Area with attention to permitted and special exception uses, the mix of uses, scale, adherence to the traditional street pattern and design and building footprint and set-backs. Such an assessment may result in the County re-mapping these properties in accordance with this Plan. (Also see Economic Development Policy 15, page 4-10.)
16. Existing non-conforming commercial, industrial, and institutional uses in the Rural Policy Area may be expanded by special exception if the use and proposed expansion are small scale, agriculturally based, pose no serious threat to public health or safety, and meet applicable performance standards.
17. Expansions to existing institutional uses will be permitted in the Rural Policy Area if the proposed expansion is compatible with neighboring uses and poses no serious public health or safety problems and if the necessary infrastructure and supporting or ancillary activities can be provided cost-effectively.
18. Country clubs and golf courses in rural areas will be permitted only by Special Exception.

Rural Economy Incentive Policies

1. The County will provide local-government resources such as technical assistance, research, educational programs, and support of committees to help promote and expand the rural economy, and seek rural entrepreneurs to locate in western Loudoun.
2. The County will establish incentive programs to protect and enhance the rural economy.
3. The County will aid in the establishment of rural conservation service districts by a super majority of property-owners within such districts. Property-owners will pay a special tax that will be used to fund or match County funds appropriated for the Purchase of Development Rights (PDR) program.
4. Use Value Assessment ("land use") and other existing agricultural programs (such as Agricultural and Forestal Districts), amended and updated as necessary, will be used to assist in maintaining the viability of farming in Loudoun County. Additional voluntary agricultural conservation programs will be designed and implemented to maintain and strengthen the rural economy and rural character of Loudoun County. In addition, the County will explore all available incentives to retain and encourage agricultural activities.
5. The County will evaluate and if necessary amend the Use Value Assessment Program. The County will consider amendments that may include the addition of the following:
 - a. Woodlands, stream valleys, meadowland, flood-ways, and wetlands and the other natural components of the Green Infrastructure as qualifying uses for reduced real property tax rates;
 - b. The elimination of roll-back real property taxes on the part of a cluster development that remains in a qualifying land use;
 - c. The dedication of roll-back real property taxes to the PDR program;
 - d. Allow land used for equine operations as a qualifying use for a lowered real property tax rate,

- regardless of whether or not it produces a product for sale;
- e. A reduction in land use-related tax rates;
 - f. A reduction in the roll-back period, if the change in land use involves a cluster development or a rural commercial use, and significant open land is preserved;
 - g. An increase in roll-back period for standard development that does not save open land; and
 - h. Making farm-worker tenant dwelling land eligible for the Use Value Assessment program if it meets the Uniform Statewide Building Code.
6. The County will first study and where appropriate seek changes in the State Code to reduce real property taxes in certain circumstances conducive to the objectives of the County's rural strategy. These include the following: tax credits on farm-related capital improvements; tax abatement or deferral when a farmer makes an investment in high-value crops that do not turn a profit for several years (orchards, Christmas trees, vineyards, etc.); assessment of tenant housing on farms below residential market value; additional reduction in the real estate tax rate on rurally zoned property that is under permanent conservation easement; and a reduction in the personal property tax for farm vehicles.
 7. The County will use public funds to purchase easements on farms that have prime agricultural soils, historic buildings and sites in a rural setting and other elements of the Green Infrastructure as part of a comprehensive open-space preservation program.
 8. The County will explore and pursue all available federal, state, and local options for acquiring conservation easements at full price, bargain sale, charitable gift, installment purchase, lease/purchase, strategic re-sale of eased land, real estate transfer tax, and conservation credit card.
 9. The County will study and if feasible aid in the establishment of a conservation foundation whose main purposes are to educate landowners about the income and estate tax benefits of conservation easement donation, to accept donations to support the County's PDR program, and to develop a network of charitable creditors and conservation-oriented buyers to guarantee loans and to purchase eased property.
 10. The County will continue to seek enabling legislation to implement a Transfer of Development Rights (TDR) program.
 11. The County will establish a coordinated service approach to assist rural landowners in the review and development of alternatives to preserve the agricultural potential on individual farms, coordinate a rural design service, and assist in filing applications, which support agricultural uses in the Rural Policy Area.
 12. County departments will work with the Loudoun Convention and Visitors Association to promote rural tourism, including: the marketing of rural tourist businesses, the production of brochures highlighting vineyards, farmers' markets, wayside stands and pick-your-own operations; tourism events such as farm tours; the promotion of historic and rural overlay districts, non-traditional and direct market businesses for their tourism value; and the tourism efforts of the incorporated Towns.
 13. The County will facilitate effective distribution of local agricultural products and encourage the growth of the market for local products. The following are examples of such initiatives:
 - a. Facilitate physical improvements to support the farm community, such as farmers' markets, a product distribution center and produce cooler by providing county-owned land for location;
 - b. Analyze market research on high-value agricultural products, ancillary farm businesses, and other

- rural economic uses such as farm resorts, retreats, and country inns;
- c. Develop and expand, in conjunction with the Loudoun Convention and Visitors Association, brand identification of Loudoun farm products;
 - d. Facilitate “red-tape” problems, processing questions, and other identified regulatory obstacles.
 - e. Advise and promote products to Loudoun-based businesses.
14. The County will form a public/private Rural Economic Development Council comprised of rural industry sector leaders. This organization will:
- a. Link governmental, non-governmental, and regional organizations;
 - b. Coordinate state and federal farm assistance programs;
 - c. Receive and make grants;
 - d. Act as an advocacy group for rural issues;
 - e. Promote activities that nurture the rural economy.
15. The County will assist in accomplishing the following:
- a. Establish joint marketing efforts, equipment buying programs, central farm product distribution systems and facility management;
 - b. Market specialized Loudoun products in order to support the creation and expansion of alternative rural land based businesses and promote a diversity of agricultural products;
 - c. Maintain and provide access to the land lease data base;
 - d. Develop and maintain a community supported agriculture concept that provides for the direct sale of farm products between farmers and local consumers including local restaurants and retailers;
 - e. Develop and maintain a rural electronic data bank; and
 - f. Assist in sharing labor and transportation resources.
16. The County will evaluate the potential for and, if appropriate, establish a “farm viability enhancement program” in conjunction with an appropriate state or local agency.
17. The County will endorse and support rural community events such as festivals, vineyard fairs, and farm and garden tours as a means of showcasing the rural economy, strengthening the economic vitality of towns, and promoting the rural experience.
18. The County will invest in such marketplace incentives as may reasonably be determined to encourage rural entrepreneurs to locate in Western Loudoun. Further, the County will adopt a set of supporting regulations and ordinances designed to enhance the effectiveness of those incentives.
19. The County will facilitate a robust rural economy by revising its Zoning Ordinance to expand permitted by-right nonresidential uses in the rural area, subject to performance and location criteria. Examples of such uses could include new equestrian centers and boarding facilities, additional vineyards and wineries, event facilities, nurseries, conference centers, corporate retreats and training facilities, telecommuting facilities, heritage and rural tourism destinations, truck farms and farmers markets, agricultural biotech startups, bed and breakfasts, restaurants, and related service firms.
20. The County will study the feasibility of organizing agricultural cooperatives.

Rural Residential

For a decade, the County has counted on a variety of voluntary residential development options and incentives to entice desired development patterns rather than directing development into specific patterns to protect the agricultural industry, essential open space, natural environment, and the rural culture and character of the Rural Policy Area. However, the County has been relatively unsuccessful in achieving the desired development pattern.

The 1991 *General Plan* set rural residential priorities. Rural Villages and Hamlets that permitted clustered densities and required permanently protected open space, additions to Existing Rural Hamlets and Villages and large lot development (one dwelling unit per 25 acres) were cited as the preferred development patterns. Nevertheless, the uniform, 3-acre lot subdivision pattern and to a certain extent the 10-acre lot subdivision have remained the favored development choices in the rural area. The County has attempted to discourage these forms of development because they encourage rural sprawl and destroy rural character. This pattern consumes prime agricultural soils that are important to the rural economy, is costly to provide services to and often exceeds the design capacity of the rural road network. It also results in a proliferation of individual, on-site wells and septic systems that threaten groundwater quality.

The basic concept underpinning the County's strategy for the Rural Policy Area is to protect the land resource of the area for rural economy uses and to provide a balance of residential and non-residential uses that enhance a rural quality of life. Such uses require prime agricultural soils, protect open land and rural character; maintain fiscal balance; and relieve the strain of rural residential development on rural road capacity and service delivery. To accomplish these goals, the County must limit the number of houses in the Rural Policy Area and direct new residential development, there and countywide, to locations that are consistent with County goals. A variety of residential development options exist within the Rural Policy Area, including conventional subdivision, spin-off lots, and rural clusters. The appropriateness of each development option will vary depending on site-specific characteristics such as parcel size, road access and location.

The County recognizes that rural residential living provides a high quality of life and responds to a substantial market niche. The County is also aware that rural land values are in part related to the development potential for housing and as such retaining acceptable land value has been considered in establishing rural residential policies. An appropriate balance has been set that adheres to the following objectives:

- Provide for a wide variety of land parcel sizes that will meet the needs of the rural economy and provide room for growth of rural residential neighborhoods.
- Encourage rural residential clustering and the use of communal water and wastewater systems. Analysis has shown that clustered lots are equal in value to "grid" lots at the same density.²
- Require all rural residential development to incorporate existing Green Infrastructure elements into the design of the site.

The Plan provides two rural residential areas each with cluster options as described below:

1. The Southern Tier (defined generally as south of Goose Creek and North Fork of Goose Creek to the County border with Fauquier County and west of the Transition Policy Area).

² Analyses of Value Retention of Rural Area Development Options (Loudoun County), Robert Charles Lesser & Company, August 2000.

This area is characterized by an existing large lot pattern with a significant number of land parcels already under easement. It is the center of Loudoun's equine industry and an important part of the rural economy. It surrounds Middleburg, a major tourist attraction, and includes many historic structures and sites including important Civil War sites of cultural importance and tourist interest. It covers a substantial portion of the Mosby Heritage Area and the Beaverdam Historic Roadways District as well as several agricultural districts that already have established 50-acre minimum lot sizes. Limiting residential growth in this area will reduce the need for additional road capacity and support these programs. There is also strong citizen support for keeping Route 50, which bisects the area, a two-lane road that is the subject of a "traffic calming" initiative from Aldie in Loudoun County to Paris in Fauquier County. As such, the Plan calls for this area to develop at a base density of 40 acres per lot, with development options to spin-off residential lots at the equivalent of one dwelling unit per 20 acres or clustered residential lots at the equivalent of one dwelling per 15 acres.

2. The Remainder of the Rural Policy Area (defined generally as north to and west of the Potomac River and west of the Transition Policy Area).

The existing land use pattern in this area is mixed, with a large number of smaller lots interspersed with large parcels still in agricultural use. Many of the new rural economy uses in the area require land parcels ranging from 10 to 50 acres in size. Therefore, a balanced approach that provides for the further development of clustered rural residential neighborhoods that provide a variety of lot sizes while preserving large parcels for future rural economy enterprises is appropriate. Rural character will be preserved through the implementation of the Green Infrastructure policies. Within this area, environmental overlay districts contained in the Zoning Ordinance will provide special protection for these critical environmental features. As such, the Plan calls for this area to develop at a base density of 20 acres per lot, with development options to cluster or spin-off residential lots at the equivalent of one dwelling unit per 5 acres.

Rural Residential Policies

1. The Rural Policy Area is comprised of three geographic areas governed by unique land use policies. These subareas include the southern one-third of the Rural Policy Area, Existing Villages, and the northern two-thirds of the Rural Policy Area. The County will develop and implement rural design standards that protect the Green Infrastructure and rural character of the Rural Policy Area in every subarea.
2. The southern part of the area is planned for rural economy uses and limited residential development at a base density of 40 acres per lot. In this area, residential densities can be increased up to one dwelling unit per 20 acres when it is developed in a spin-off lot subdivision, or up to one dwelling unit per 15 acres when it is developed in a cluster pattern leaving substantial amounts of land available for rural economy uses.
3. The northern part of the Rural Policy Area is planned for rural economy uses and limited residential development at a base density of 20 acres per lot. Likewise, residential densities in this area can be increased up to one dwelling unit per 5 acres when it is developed in a clustered pattern or spin-off lot subdivision leaving substantial amounts of land available for rural economy uses.
4. The County provides for clustered and large lots and low density to ensure the preservation of parcels at a size conducive for commercial and non-commercial rural economy uses, as well as to protect the Green Infrastructure, preserve rural character, minimize the problems of increased traffic, and reduce the need for additional public and commercial facilities and services.

5. Existing parcels under 20 acres may provide for smaller farms and rural residential uses. Incentives will be developed to encourage the consolidation of undeveloped, small lots into larger parcels.
6. The County recognizes and supports the intent of the Family Subdivision Statute to provide for small family lots on family farms. Family subdivisions will continue by right in the Rural Policy Area at the base density provided by the Zoning Ordinance for that area.
7. The County will increase the amount of time to five years prior to resale that a lot created through the family subdivision process must be held by a family member. An exception may be made in the case of estate sales.
8. In order to enable a property-owner to generate capital from the sale of a lot, the County will provide for a spin-off lot subdivision process. Spin-off lots may be as small as 80,000 square feet (approximately 2 acres), can be clustered, and can be served by a private access easement as provided by the Zoning Ordinance for the applicable zoning district. The lots created by the spin-off process would be counted against density permitted by the originating tract.
9. A variety of residential unit types and accessory apartments will be permitted by the Zoning Ordinance in the Rural Policy Area to achieve affordability.
10. The County, as part of broader housing initiatives, will study, establish and implement a housing program that addresses the maintenance, conservation, and improvement of existing housing stock and the development of new housing for seasonal farm laborers and year round tenant housing. New regulations for housing farm laborers will be developed and incorporated into the Zoning Ordinance if necessary.
11. Rural Cluster developments allow landowners to group lots in a traditional rural community pattern, while preserving the majority of the land base for rural economy uses. A Rural Cluster is the grouping of building units on lots of varying sizes with the largest part of the site remaining in open land. Lots served by on-site water and on-site wastewater within a rural cluster may be a minimum of 40,000 square feet (approximately 1 acre). Lots served by on-site water and off-site wastewater within a rural cluster may be a minimum of 20,000 square feet (approximately ½ acre). Lots served by communal water and wastewater within a rural cluster will have no minimum lot size. A variety of lot sizes is encouraged within all rural clusters to provide a diversity of housing types and rural economy uses. The residual open land in a cluster accounts for the overall lower density of the site, and will serve to accommodate rural economy uses and preserve rural character. Rural economy uses are encouraged on any and all residential lots.
12. The County may consider a cluster to include the siting of houses in a group and not just the siting of lots on a parcel. The cluster should incorporate existing Green Infrastructure elements into the design and preserve the rural character of the site.
13. In locating the open space required for a Rural Cluster, the following site features should be considered to ensure that the land kept in open space provides for appropriate rural economy uses:
 - a. Percent of open space area that is made up of prime agricultural soils;
 - b. Size of the area that is usable for agricultural production;
 - c. Contiguity of open space area to other designated open space or agricultural land;
 - d. Relationship of development of adjacent properties to the agricultural activity on the open space area;

- e. Relationship of non-agricultural use of the open space area to adjacent agricultural uses; and
 - f. Unique site features and Green Infrastructure implementation.
14. The County will identify options for affordable housing in the rural area not covered by the ADU zoning ordinance and work towards an implementation plan.
 15. The Board will immediately establish a transportation impact fee, as permitted by current law, and further, the Board will seek authority from the state legislature to establish impact fees in the Rural Policy Area, where rezoning applications are not permitted, to help cover the costs of constructing new capital facilities.

Green Infrastructure

The Rural Policy Area is distinguished by exceptional elements of the Green Infrastructure that not only add beauty to daily life and document the County's past; but are also an essential component of the tourism industry and the rural economy. Major components of the Green Infrastructure that require preservation include:

- The slopes and ridges of the Blue Ridge, Short Hill, and Catoclin mountains.
- Two state-designated scenic rivers, Goose Creek (all) and Catoclin Creek (from Waterford to the Potomac), and their tributaries which form a complex network of waterways;
- The lush soils of Loudoun Valley located between the mountain ranges;
- The limestone conglomerate area north of Leesburg and east of the Catoclin Ridge a fragile environment with unusual rock outcrops and topography;
- A network of 330 miles of unpaved, often historic, rural roads with stone fences, old growth canopy trees, and adjoining historic structures and spectacular views of the countryside;
- The state-designated Scenic Byways (various segments of Route 15 and Routes 734, 731, 728, 722, 719, 704, 690, 681, 673, 665, and 662) that have linked rural communities and historic places for generations;
- Historic structures including 18th century structures made of stone or log and stately, 19th-century manor houses, such as Oak Hill, Rockland, and Chestnut Hill.
- Smaller tracts and less imposing homes reflecting the influences of Quakers and Germans who settled farming communities west of the Catoclin Ridge.

The Rural Policy Area also has special districts that protect components of the Green Infrastructure. Twenty-one of the County's 23 Agricultural and Forestal Districts are in the policy area and encompass more than 60,000 acres. These voluntary districts protect agricultural and other land-based uses from the intrusion of suburban services and infrastructure and secure land for agricultural production for a voluntary fixed time period.

There are six County Historic Districts (Aldie, Bluemont, Goose Creek, Oatlands, Taylorstown and Waterford) that contain vast heritage and architectural resources. The Village of Waterford, Oatlands Plantation, Balls Bluff, Dodona Manor and Oak Hill are designated National Historic Landmarks. The Catoclin Rural Historic District, located between the Catoclin Ridge and the Potomac River, is a State

Historic District. The entire historical and archeological inventory in the County includes 1,100 historic structures and more than 300 archeological sites. These heritage and natural resource elements of the Green Infrastructure are an integral part of the County's way of life that must be preserved for future generations as they have been for the past 240 years.

There are many other important features of the rural landscape that help define the rural, working landscape and help protect water quality, air quality, and wildlife habitat and are critical for the health of the rural economy and the County. They include: hedgerows, meadows, farm fields, forests and tree cover, wild and domestic animals, bodies of water, topography, slopes and ridge-lines, stream valleys and wetlands, road enclosures (including embankments, tree canopy and structures), roads (paved and unpaved), cemeteries, agricultural structures, historic bridges, fence lines, historic rights-of-way, driveways, field demarcations, property entrances, community spaces (including parks and greens), hamlets and villages, scenic vistas and the rural experience.

Green Infrastructure Policies

1. The County will develop and implement rural subdivision design regulations that address the location of houses on the landscape, the use of cul-de-sacs, the retention of open space in contiguous parcels suitable for economic production; and the protection of green infrastructure features such as the best agricultural soils, stream corridors, wetlands, steep slopes, major ponds, important tree stands, historic structures and stone walls, and major rock outcrops and geological features.
2. Land development in the Rural Policy Area will retain rural economic opportunities, preserve farms, forests, open space, and the rural character of the landscape through conservation subdivision design, clustering, and the preservation of large lots at low density.
3. The County will conduct a visual landscape analysis to record and map the scenic aspects of road corridors and will prepare and implement protection measures for rural character features (such as designation of historic roadway districts).
4. The County will identify those properties that are not conducive to development due to sensitive environmental, cultural, and historical characteristics, and promote their purchase through various programs (such as the County's PDR program, through land trusts, etc.).
5. The County will promote the preservation and reclamation of farm buildings and structures to maintain the agricultural infrastructure for future rural economy uses and to retain them as important contributing elements to the visual integrity of the County. The County will use incentives, such as Virginia tax credits and develop new incentives, such as a local tax abatement program.
6. The County will encourage owners of 20 acres or more to avail themselves of the open space category of the Use Value Assessment Legislation by entering into voluntary contracts with the County requiring preservation of open space, particularly in sensitive environmental areas such as river and stream corridors, forested areas, areas adjacent to Scenic Byways and primary roads in rural areas, and other areas designated as part of the County's Green Infrastructure.

Water and Wastewater

A. Groundwater

Groundwater is a precious resource that is highly susceptible to fluctuation in quantity and quality. The variation is influenced by recharge rates, withdrawals from the water table, and contamination.

Groundwater is recharged by surface water filtering through soils and fractures, joints, and pores in rock. Recharge and its rate are affected by the volume and duration of precipitation; the permeability of the soils and rock; topography, and the degree of fracture-to-fracture interconnection. Preliminary findings of the County's Groundwater Advisory Committee state that there may be a negative effect of additional withdrawal on the quantity of groundwater available to support new development. Although it is not now known with certainty that additional wells will lower the overall water table or affect regional groundwater quantities, local supplies can be affected by draws because of the cone of depression created by pumping a well.

Individual wells drilled to the groundwater table are the most prevalent method of providing potable water to rural residents. About 12,000 individual wells serve homes in the County, most of them in the Rural Policy Area. About 234 public-use wells serve towns, schools, private subdivisions, restaurants, gas stations, and other facilities. About 98 irrigation wells and 13 industrial wells are employed for uses such as golf courses or concrete plants. Countywide, there are about 13,000 on-site, individual wastewater systems that include a septic tank and drainfield. The proliferation of individual wells and on-site waste disposal systems may pose a serious groundwater contamination risk. The County can reduce the risk by encouraging a development pattern that is served by communal facilities, rather than by individual wells.

The quality of groundwater, however, may well be exposed to significant contamination risk as increasing numbers of drainfields associated with exurban residential development are installed in the Rural Policy Area. Groundwater contamination can originate on the ground's surface, in the unsaturated ground above the water table, and in the saturated ground below the water table. Because groundwater moves so slowly, once it is contaminated, it may take years for the contamination to be mitigated. A major cause of groundwater contamination is effluent or outflow from on-site sewage disposal systems (septic tanks and drainfields). When these systems are improperly sited, designed, constructed, or maintained, they can contaminate the groundwater with bacteria, nitrates, viruses, detergents, chemicals, and chlorides. Although individual failed systems make an insignificant contribution to contamination, a multitude of these systems makes them a serious contamination threat to the quality of groundwater in the Rural Policy Area.

Communal water systems that are based on one or more communal wells and provide water to multiple homes in a compact geographic area have many distinct advantages over individual private wells. Communal water systems are required to be designed to state and local standards, and will be owned and operated by the LCSA, which has the expertise and resources to operate and maintain the systems to a high level. Fewer wells and proper location of wells with respect to septic drainfields or other wastewater discharge locations reduces the potential for groundwater contamination.

The long-term quality and quantity of groundwater is critical to the health and welfare of residents of the Rural Policy Area. In order to protect the quality and quantity of groundwater, the County can institute a wellhead protection program, a groundwater monitoring program, reduce groundwater use by decreasing the number of groundwater withdrawals through water conservation and reduction in the number of wells, reduce the number of wells to reduce potential contamination opportunities, use communal and/or central water systems when possible to avoid drilling multiple individual wells in close proximity to one another, require comprehensive hydrogeologic studies of entire properties proposed for development prior to approval, and adjust land use policies based on the potential effects of surficial activities on groundwater quality.

Water policies are contained in Chapter Two of this Plan and Groundwater Policies are contained in Chapter Five.

B. Wastewater

As rural dwelling units proliferate, groundwater contamination from failed drainfields becomes a growing threat. Septic systems pollute groundwater either by not effectively removing contaminants from wastewater or by failing. Even properly maintained systems have a useful life of no more than 25 to 40 years. When a system fails, a replacement must be installed in a second drainfield on the same property. The County now requires owners of all newly installed systems to have on their building sites reserved drainfields to fully accommodate replacement systems.

Posing less of a threat to groundwater quality are alternative, on-site individual disposal systems. They more effectively pre-treat wastewater, releasing higher-quality effluent. However, there are more complicated operational and maintenance issues associated with these systems. They must receive regular inspection, service, and oversight by trained professionals.

Conventional communal wastewater systems for multiple users are available but generally require a minimum of 50 taps in order to be economically and operationally efficient. Costs associated with communal systems have been a deterrent to clustered residential development. Current 2001 zoning regulations allow clustered development on individual septic and drainfield systems. However, lot sizes in such developments have been enlarged and drainfields placed off-site, defeating the environmental and open-space efficiencies of clustering. Recently, alternative communal systems have become available to economically serve smaller clusters of units. The Loudoun County Sanitation Authority (LCSA) oversees the operation of communal systems in the County.

To protect the groundwater that supplies drinking water for residents and businesses in the Rural Policy Area, the County will limit the number of individual wells and wastewater disposal systems by decreasing the density in the Rural Policy Area. This will have a direct, positive impact by reducing the number of potential septic tanks and intrusions in the water table. The County will encourage the development of combination and alternative systems where feasible and communal systems both water and wastewater to support clustered residential development. The County will rely on the LCSA to identify or contract for the professional expertise required to manage alternative and communal systems installed in the Rural Policy Area.

Wastewater policies are contained in Chapter Two of this Plan.

Transportation

The County's rural road network was developed to serve the needs of the farming community. (See Road Surfaces Map, pg. 7-21) The roads originally were laid out to accommodate the slow travel of horse-drawn wagons. Today, these roads do not have the capacity to safely accommodate the substantial volumes of higher speed, modern traffic associated with the 3-acre lot subdivision pattern in the Rural Policy Area. Sensitivity to centuries-old stone walls, large trees, homes and outbuildings, scenic views and the Green Infrastructure must be an essential element of road improvements if Loudoun is to retain its rural character.

Though many roads in the County's rural area have the benefit of an all-weather surface, half of them are gravel. More than 300 miles of unpaved roads are 16 feet wide or less. Narrow widths, excessive horizontal and vertical curvatures, bridge and drainage problems, and poor intersection alignments on rural roads contribute to the safety concerns associated with increasing motor vehicle traffic but there is a shortage of funds for improvements.

For this reason, the County supports road improvement levels that do not meet the highway standards of the state. On a select, project-by-project basis, County and state officials have been able to develop modified

road improvements that incorporated rural character features as well as safety. Rural road improvement policies should continue to recognize the dual elements of safety and sensitivity.

Increased residential densities in the Rural Policy Area are producing traffic congestion during commuting times and requiring more maintenance of the fragile rural road network of predominantly narrow, two-lane paved and unpaved roads. Major collector and arterial roadways already are beyond capacity, and improving roads that feed traffic onto them would not solve, and could even exacerbate, existing capacity problems. In addition, state and County transportation funding is not sufficient to substantively improve the road network. The County instead will make only limited safety improvements, as necessary, to rural roads and will reduce the overall housing density of the area to a level that can be serviced by existing roads. The ultimate residential density of the Rural Policy Area and resulting vehicle trips must be coordinated with the capacity of the existing and planned rural road network in order to avoid significant traffic congestion and unsafe road conditions.

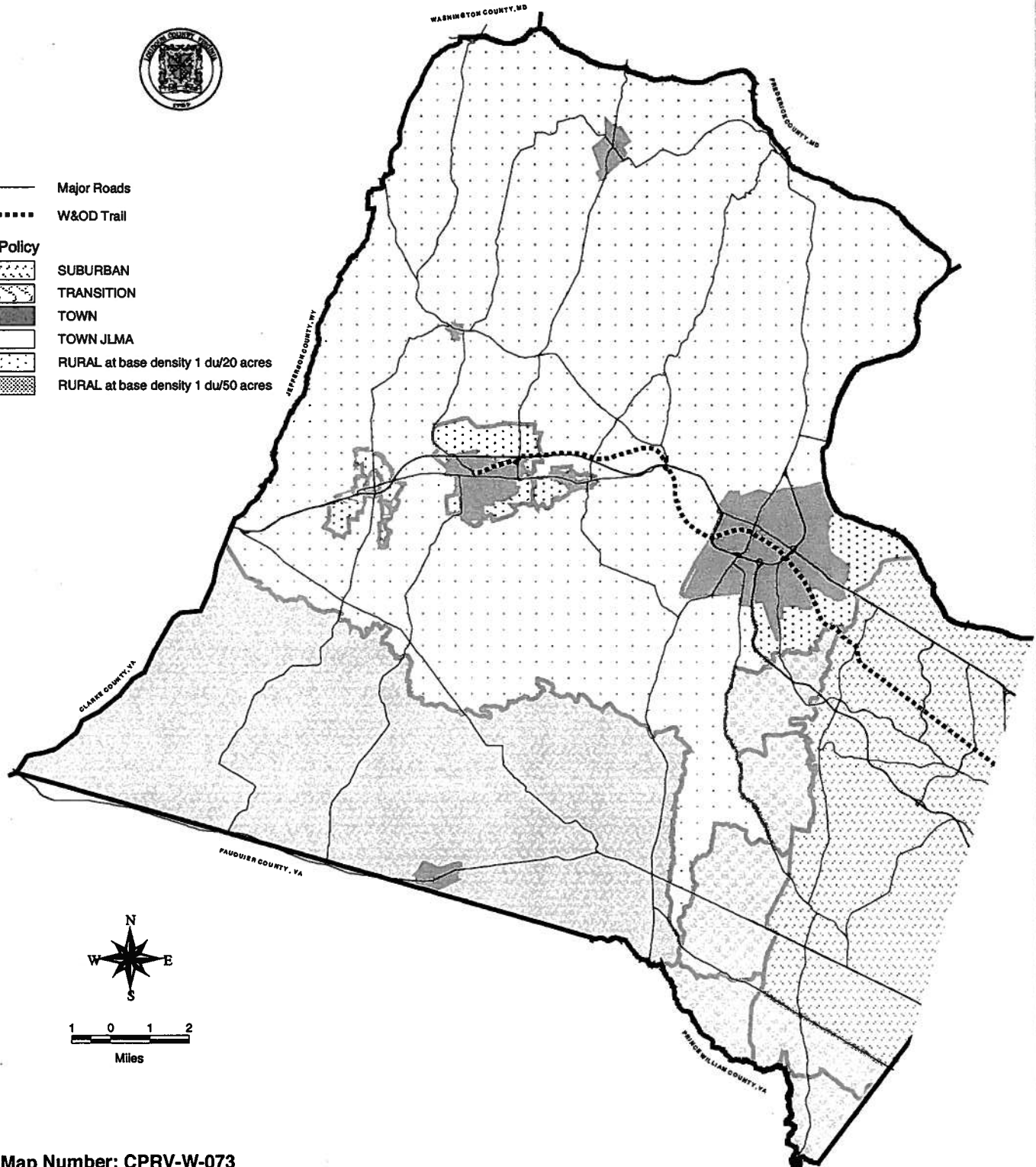
Rural Transportation Policy (see *Revised Countywide Transportation Plan*)

1. The *Revised Countywide Transportation Plan* (Revised CTP) provides transportation policy direction for the transportation network in the Rural Policy Area. The hierarchy of roads will be amended to reflect the scale and function of the Policy Area Land Use.

Rural Policy Area



- Major Roads
- W&OD Trail
- Policy**
- SUBURBAN
- TRANSITION
- TOWN
- TOWN JUMA
- RURAL at base density 1 du/20 acres
- RURAL at base density 1 du/50 acres



Map Number: CPRV-W-073

Chapter 10

Existing Villages

There are several small villages and hamlets located outside the boundaries of Loudoun's incorporated towns and planned residential communities. These small settlements grew up at crossroads or around a railroad depot, an important mill, a church or a store. Today, they serve as focal points for the surrounding areas and exert a social and "place name" influence extending beyond their visual and physical boundaries. These villages are unique scenic and historic resources. With careful planning and moderate growth, they will maintain their scenic and historic character, as well as their social and economic viability.

There are 13 major villages (see Existing Villages Map, pg. 10-3) in the County: Aldie, Aldie Mountain, Ashburn, Bluemont, Lincoln, Lucketts, Neersville, Loudoun Heights, Paeonian Springs, Philomont, St. Louis, Taylorstown, and Waterford. With the exception of Ashburn, all are located in the Rural Policy Area. Regardless of location, they all maintain a rural feel and a true sense of community. Land uses in the villages are governed by the County.

The County's policy strategy for maintaining the viability and sense of place associated with the Existing Villages is to limit growth in and around them. Existing Villages should continue to be hubs for community activities and new residential and nonresidential development. By encouraging compact development, these policies also complement the County's efforts, particularly in the Rural Policy Area, to preserve agricultural land and maintain the character of the rural, working landscape.

The individual character of each village should be maintained and respected. The County's policies for Existing Villages are aimed at limiting new residential and non-residential activities to that which is compatible with the existing structures and development patterns of the communities. If new development expands an Existing Village, it should be in the particular pattern of the individual village, adhering to its street pattern, mix of uses, indigenous and varied architectural styles, and human scale.

Although limited new development generally is permitted in Existing Villages, new development should not pose a threat to public health or safety. Several of the County's Existing Villages lack either an assured water supply or a wastewater disposal system, or both. The policies for Existing Villages provide options for improving the quality and safety of public services in these villages.

Existing Village Policies

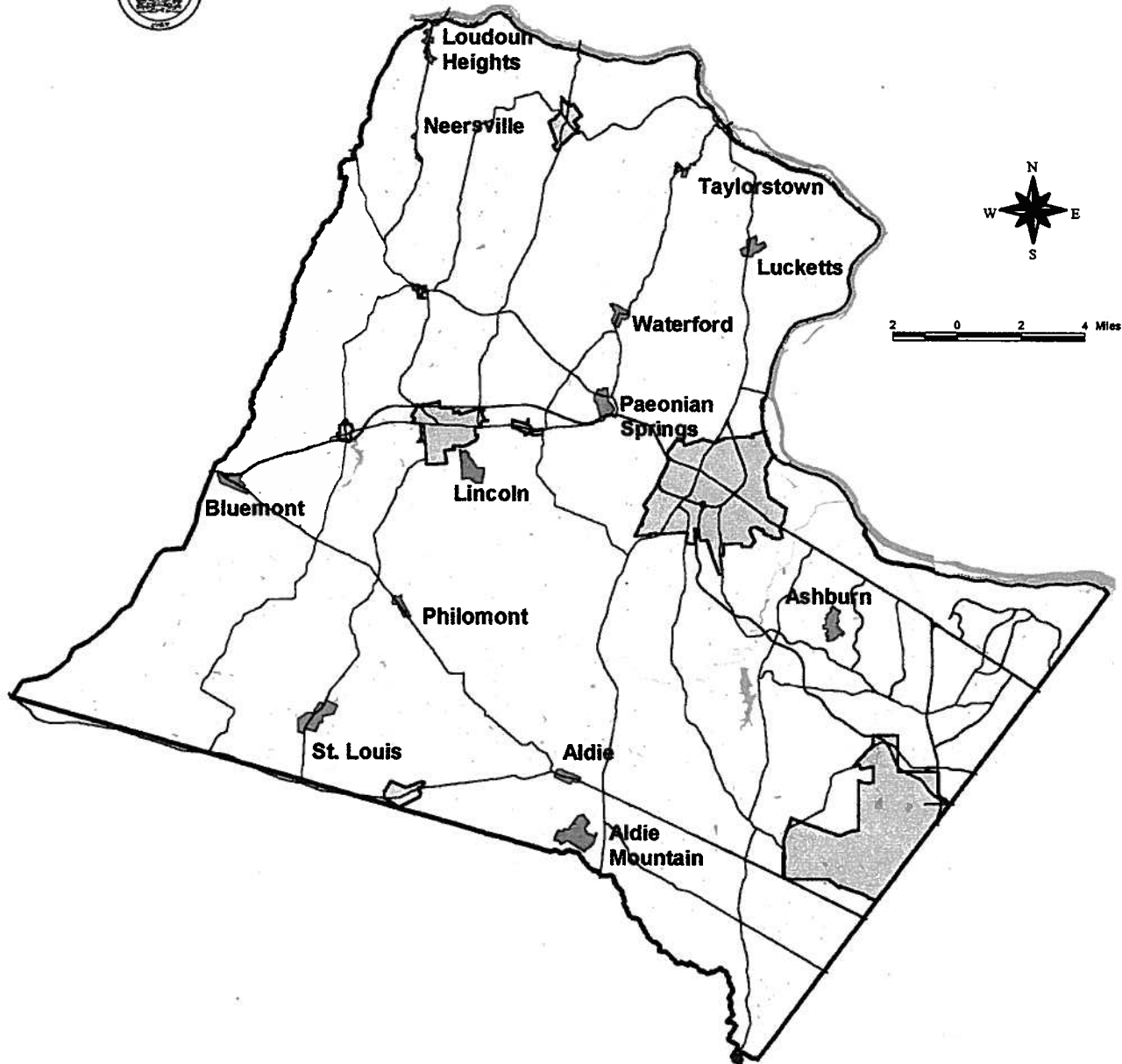
1. The County recognizes the Existing Villages as important heritage resources that contribute to the rural economy, providing economic benefit to the County and encouraging tourism in a manner that does not conflict with or intrude on the villages' existing quality of life and will not adversely affect their rural character.
2. The County will allow compatible development to occur within those Existing Villages that have adequate public facilities, zoning, transportation facilities and land resources to accommodate growth.
3. The County will encourage the retention and reinforcement of the cultural and visual identity of




individual villages.

4. New development in and around Existing Villages must be designed to be visually compatible in terms of street pattern, street design and building footprint and setbacks. Conventional, suburban forms are not appropriate in and contiguous to the Existing Villages. Design guidelines, incentives and regulations to achieve compatible designs will be established and implemented by the County.
5. The County encourages a diverse range of dwelling unit types in Existing Villages, including accessory apartments attached to single family dwellings or as second story uses in commercial structures. New units will be designed, sized and sited to ensure compatibility with the present scale and character of the existing village.
6. Rezoning to higher residential densities will not be approved in Existing Villages unless the proposed zoning provides a design that reinforces the character, pattern of development and identity of the Village in a manner not possible under the existing zoning. In considering rezoning proposals in Existing Villages the County will consult with Village residents.
7. Large-scale commercial uses will not be allowed in Existing Villages. The County encourages the location of small scale, convenience-sized commercial uses that meet local neighborhood needs on parcels with existing commercial zoning. New commercial uses will be compatible in scale to the surrounding buildings and related uses in the village.
8. The County will convert existing RC zoned land in villages to a new village commercial district(s) which will be designed to better meet the needs of rural village residents and the commercial landowner as well. The new district(s) should ensure that the new commercial uses are compatible with existing village scale and character and allow local, neighborhood related commercial uses. The zoning regulations/requirements of this new commercial district will be devised in consultation with input from the councils of some Existing Villages and citizen groups from the village and surrounding rural area.
9. The County will allow small-scale industrial, commercial and institutional uses in Existing Villages that are compatible with existing residential and agricultural land uses in and around the village and where existing zoning would permit such uses.
10. Mining or extraction activities will be prohibited in or adjacent to Existing Villages. Rezoning and special exceptions to permit resource extraction will not be approved in these areas.
11. The County encourages the preservation of historic structures and sites by promoting the establishment and expansion of County Historic Districts, the donation of facade and open space easements, designation of sites on the State and National register, inclusion in the County's inventory of historic sites, adaptive reuse and rehabilitation and other public and private mechanisms in Existing Villages.
12. New development will be designed, built and sited to be compatible with the scale, size, historic character and style of buildings of the village. This policy applies to all architectural and landscape elements of any new structures, including the proportions and design of facades, building heights, fenestration, materials, massing, structural system, orientation, siting and yard layouts, relationship to adjacent buildings, landscaping, roof pitch and especially the relationship to the public street. The County's Historic District Guidelines establish principles and standards for achieving such compatibility.
13. The County will encourage the National Park Service and other public or private preservation agencies to purchase (at fair market value) and place easements on properties that are in the Waterford National

Historic Landmark boundaries to minimize the impact of development in the Landmark area. When it is not feasible for a property to be purchased outright, the County will encourage the voluntary transfer of density from property within the Waterford National Historic Landmark area to property elsewhere in the County.

Existing Villages



-  Major Roads
-  Existing Villages
-  Towns/Airport

Map Number: CPRV-W-128

Chapter 5

The Green Infrastructure: Environmental, Natural, and Heritage Resources

Abundant natural resources and a rich cultural heritage have defined Loudoun County's unique sense of place for more than 240 years. The mountainsides, forests, streams, vast stretches of agricultural land, and numerous historical sites are tangible assets that make the County an appealing place to live and work, while contributing directly and indirectly to Loudoun's economy.

The Green Infrastructure organizes the County's environmental, natural and heritage resources into a related system consisting of the Potomac River edge, stream corridors and scenic rivers, forested areas and tree stands, mountainsides, wetlands, limestone conglomerate areas, important plant and wildlife habitats, greenways and trails, scenic areas and corridors, historic and archaeological sites, and other open spaces (natural, eased and man-made) of special importance. (Refer to Green Infrastructure Map. Pg. 5-3)

In all future land use planning, the framework of the Green Infrastructure will guide where and how development and redevelopment occurs. Conservation design requires the conservation of Green Infrastructure elements on a site while providing for development at full density on the area that remains. It will be incorporated into regulations with performance standards that will support the Green Infrastructure, highlight its environmental and economic value, and provide flexibility.

The County will apply a Green Infrastructure strategy to guide the implementation of environmental policies. This strategy is based on three goals:

- Conservation – Creating a stronger relationship between natural and built environments.
- Preservation – Retaining and protecting existing environmental, natural and heritage resources.
- Restoration – Adding to the Green Infrastructure wherever possible.

The Green Infrastructure components are organized into four groups as follows:

- Group One: Natural Resource Assets (River and Stream Corridors; Scenic Rivers and the Potomac River; Surface and Groundwater Resources; Geologic and Soil Resources; Forests, Trees and Vegetation; and Plant and Wildlife Habitats)
- Group Two: Heritage Resource Assets (Historic and Archaeological Resources, and Scenic Areas and Corridors)
- Group Three: Open Space Assets (Greenways and Trails, Parks and Recreation, Public School Sites, and Open Space Easements)

- Group Four: Complementary Elements (Air Quality, Lighting and the Night Sky, and Aural Environment)

The Green Infrastructure resources are interdependent and many of the implementation strategies will protect integrated systems, rather than individual resources. Implementation includes the following:

- Identification and mapping of the Green Infrastructure.
- Regulatory protection of the Green Infrastructure. Incentives for adding to the Green Infrastructure.
- Provisions for public and private stewardship.
- Education program about the Green Infrastructure.

Green Infrastructure Policies

1. The County recognizes its Green Infrastructure as a collection of natural, cultural, heritage, environmental, protected, passive, and active resources that will be integrated in a related system. It will provide the framework for strategic land use planning policies, provide the context for all development and ensure quality of life throughout the County. It includes major rivers, stream corridors, floodplains and wetlands; lakes; reservoirs and impoundments; limestone conglomerate, mineral resources and prime agricultural soils; steep slopes; ridges and mountain-sides; protected forests and vegetative landscapes; wildlife and endangered species habitats; heritage resources; scenic corridors, parks, greenways, trails, and recreational facilities.
2. The County will use integrated management strategies in using the Green Infrastructure to ensure that all land use planning and development respect and preserve the holistic nature of the elements of the Green Infrastructure.
3. The County recognizes that much of its Green Infrastructure is made up of natural resources that are fragile and irreplaceable and, therefore, will protect and preserve these resources in perpetuity. All natural resources will be protected and preserved to the extent that such protection and preservation is consistent with other policies of this Plan. The County's watersheds are the key natural resource element in the Green Infrastructure and will be used as its primary organizing unit.
4. The County will prepare and maintain a map of the Green Infrastructure and its elements, and identify the location of future Green Infrastructure elements as part of an integrated system and contiguous network of natural and passive open spaces, and active recreational sites.
5. A conservation design method will be applied during the land development and redevelopment processes. Elements of the Green Infrastructure will be identified with the initial submission of each proposal, as a guide to the placement of structures, drainage, utilities, and roads. Regulations will be developed with performance standards that will direct their placement.
6. The County will develop a form of conservation easement to protect open space areas in subdivisions and to ensure long-term maintenance and protection of the area. Such easements will be recorded as part of the subdivision process.
7. The *Facilities Standards Manual*, the *Land Subdivision and Development Ordinance*, and other pertinent administrative documents will be revised to implement management strategies and to model development principles based on the Green Infrastructure.

8. The County will develop reasonable criteria for open-space dedications and will expect all landowners to dedicate land, or provide fees in lieu, for general open space and/or parks. These criteria will be designed to mitigate the impacts of their development and provide open space resources for the future users and occupants of the development.
9. The County will proactively promote private, state and federal conservation programs and their allocated resources to advance conservation programs within the County through public and private means such as grants, voluntary easements, dedications, etc.

The Built Environment

The County will prepare and implement guidelines, incentives and regulatory measures to achieve a built environment that:

- Protects, enhances and helps to sustain the natural environment.
- Protects the health and safety of the community, provides for the quiet enjoyment of private property, and promotes the well-being of the County's inhabitants by being aesthetically attractive and varied and stimulating in its forms, scale and materials.
- Is pedestrian friendly, has a clear overall structure in its communities and neighborhoods which makes it easy for the individual to orient himself or herself in those communities and neighborhoods, and helps to establish a unique identity and sense of place in each community.
- Is cost effective for both the private and public sectors in its spatial layout and in the construction, operation and maintenance of its public facilities.

Built Environment Policies

1. The County will achieve and sustain a Built Environment of high quality, recognizing the importance of this for the health, safety, convenience and general welfare of the County's residents and visitors and its importance for the vitality of the County's economy in attracting and sustaining private investment.
2. In implementing its program for achieving and sustaining a Built Environment of high quality, the County will emphasize its role as leader and facilitator, and as a source of information on environmental design options and procedures, rather than as a regulator. It also will emphasize the use of incentives for innovation and good design and collaborative public/private/community partnerships for program implementation. These incentives will include provision for two annual awards of certificates of excellence in environmental design. One for the private enterprise meeting standards of excellence established for this award and one for the community group achieving analogous standards of excellence in community-based environmental design and maintenance.

Group One: Natural Resource Assets

Natural Resource Assets are the elements of the Green Infrastructure that represent the most natural settings in the County, including River and Stream Corridors; Scenic Rivers and the Potomac River; Surface and Groundwater Resources; Geologic and Soil Resources; Forests, Trees and Vegetation; and Plant and Wildlife Habitats. These elements are or will be in a combination of private and public ownership. The goal for this group of elements is both preservation and, wherever practical, restoration of their natural state.

A. River and Stream Corridor Resources

The County's river and stream corridors are the largest system in the Green Infrastructure, comprising the largest natural ecosystem, supporting air quality, water quality and biological diversity. In addition to the rivers and streams that drain 100 acres or more, the corridors include associated 100-year floodplains, and adjacent steep slope areas. The river and stream corridors also contain wetlands and riparian forests and many of the County's important historic and archaeological sites.

Because of the enormous diversity and importance of the natural systems of river and stream corridors, the County desires to protect these corridors by preserving, conserving, and restoring their water quality, flood protection, aquatic and wildlife habitat, and scenic value.

To accomplish these objectives, the County will adopt a River and Stream Corridor Overlay District (RSCOD) that will protect these critical resources. (Refer to River and Stream Corridor Resources Map, pg. 5-7)

The RSCOD contains rivers and streams draining 100 acres or more; associated 100-year floodplains; adjacent steep slope areas; a management buffer around floodplains and adjacent steep slopes; a minimum no-build stream buffer; and wetlands, riparian forests, and historic and archaeological sites to the extent that they fall within the RSCOD. The 50-foot Management Buffer is flexible.

The river and stream corridor system can filter runoff and land-based pollution, filter airborne pollutants and produce oxygen (where riparian forests are encouraged), keep water temperatures cool, store flood waters and reduce floodway velocities, serve as groundwater recharge areas, provide food and habitat for fish and wildlife, and improve overall water quality. Loudoun's river and stream corridors also provide many scenic, passive recreation, and educational opportunities.

The County will strive to establish a working public and private partnership with property owners, acknowledging that the RSCOD will remain largely in private ownership. The County will also pursue acquisition of appropriate river and stream corridor assets through open space dedication or easement, purchase of development rights, and other such programs to ensure the protection of these resources for the public good.

The County will strive to preserve, protect, and manage the RSCOD through policy and regulation, and the development and implementation of strict performance standards, best management practice requirements, and permissible uses.

River and Stream Corridor Resources Policies

1. The County recognizes the importance of river and stream corridors to the health, safety and welfare of its citizens, and establishes the objectives of the RSCOD to:
 - a. Protect a dynamic and healthy river and stream corridor ecosystem.
 - b. Ensure that water is clean and safe.
 - c. Protect against the damages of soil erosion and flooding.
 - d. Fulfill fish and wildlife needs.
 - e. Perpetuate biological diversity and natural resource management for their educational, enjoyment and aesthetic value.

2. The County will protect rivers and streams and their corridors through the creation of a River and Stream Corridor Overlay District (RSCOD), which will include:
 - a. Rivers and streams draining 100 acres or more.
 - b. 100-year floodplains (including major and minor).
 - c. Adjacent steep slopes (slope 25 percent or greater, starting within 50 feet of streams and floodplains, extending no farther than 100 feet beyond the originating stream or floodplain).
 - d. 50-foot Management Buffer surrounding the floodplains and adjacent steep slopes.
 - e. Wetlands, forests, historic and cultural resources, and archaeological sites that fall within the area of one or more of the above elements.
3. A 100-foot minimum stream buffer will protect rivers and streams when the 100-year floodplain and adjacent steep slope areas do not extend beyond either bank by 100 feet, and will be considered part of the RSCOD. The minimum stream buffer is measured from the scar line landward on both sides of the stream. The minimum stream buffer provides a minimum filtration area that will ensure the maintenance of water quality and the integrity of the stream corridor. The 50-foot Management Buffer will not be added to the 100-foot minimum stream buffer.
4. The 50-foot Management Buffer will protect the other RSCOD elements from upland disturbances and adjacent development. Only uses consistent with the objectives and functions of the overall RSCOD will be permitted in the Management Buffer.
5. The 50-foot Management Buffer can be reduced if it can be shown that a reduction does not adversely impact the other RSCOD elements, and that performance standards and criteria, developed as part of the implementation of the river and stream corridor policies, are met and maintained. Reducing the Management Buffer may also ensure that an undeveloped residential parcel that would otherwise suffer from the placement of the Management Buffer may develop to its potential.
6. Wetlands, riparian forests, and historic and archaeological sites located within the RSCOD will be protected in accordance with RSCOD performance standards and best management practice requirements.
7. The County will consider adoption of the environmental regulations of the Chesapeake Bay Preservation Act (Bay Act). The County will seek to achieve those objectives of the Bay Act that are in the best interest of the County, and will actively participate in water quality initiatives to protect and improve regional water quality.
8. The County recognizes the river and stream corridors as an essential natural element of the regional eco-system. River and stream corridors will remain largely in private ownership, but the County will pursue acquisition of key resources as part of other open space and purchase of development rights programs. The County will actively pursue a joint public and private partnership for the preservation, conservation, restoration, and management of the resources in the RSCOD.
9. The County will develop and use incentives to encourage property-owners to adhere to the performance criteria of the RSCOD.
10. The County will develop and use additional incentives to supplement federal and state incentives such as the Conservation Reserve Enhancement Program to encourage property-owners to establish and maintain a 100-foot minimum riparian stream buffer and adhere to performance criteria of the RSCOD in agricultural areas.

11. River and stream segments draining less than 100 acres are not included in the RSCOD. The County encourages the protection and preservation of these smaller stream segments through the application of conservation design techniques that will minimize disturbance and modification of such streams through the land development process.
12. Steep slopes (slopes greater than 25 percent) and moderately steep slopes (slopes of 15 to 25 percent) that are outside of the RSCOD are not governed by river and stream corridor policies. These steep slopes will be governed by separate Steep Slopes and Moderately Steep Slopes policies.
13. The County will develop a partnership with the U.S. Army Corps of Engineers (COE) regional office, responsible for implementing federal wetlands regulations, to regulate wetlands outside of the RSCOD.
14. Forests and trees that are outside of the RSCOD are not governed by river and stream corridor policies. Separate Forests, Trees and Vegetation and, where appropriate, Air Quality policies will govern these forest areas and trees.
15. Historic and archaeological sites outside of the RSCOD are not governed by river and stream corridor policies. These sites will be governed by separate Historic and Archaeological Resources policies.
16. The Zoning Ordinance will be amended, including but not limited to Floodplain Overlay District (FOD) and Scenic Creek Valley Buffer sections, to address and satisfy the ecosystem, water quality, flood protection, habitat, and use objectives of the RSCOD. Amending County ordinances and regulations will also establish strict performance standards and best management practice requirements. Performance standards and criteria will ensure the health and biological integrity of the river and stream corridors and minimize adverse impacts. Requiring best management practices for the activities permitted in the RSCOD will help to protect and conserve its natural resources and their processes, and ensure both economic and ecological success.
17. The Zoning Ordinance will be amended to address non-conformities for existing residences and for undeveloped residential parcels that fall within the buffers of the RSCOD, public water supply sources and reservoirs, scenic rivers, and the Potomac River.
18. The County will only allow development and uses in the RSCOD that will support or enhance the biological integrity and health of the river and stream corridor. Permitted uses are intended to have minimal adverse effects on wildlife, aquatic life, and their habitats; riparian forests, wetlands, and historic and archaeological sites; and will be required to complement the hydrologic processes of the river and stream corridors—including flood protection and water quality. Uses will be limited to:
 - a. Road crossings, rail crossings, bridges and drive-way crossings (only when the environmental objectives of the RSCOD can be maintained or enhanced).
 - b. Utilities and utility rights-of-way (only when the environmental objectives of the RSCOD can be maintained or enhanced).
 - c. Local and regional stormwater management facilities (subject to best management practice requirements).
 - d. Public lakes and ponds (subject to best management practice requirements).
 - e. Public water supply reservoirs.
 - f. Historic and archaeological sites.
 - g. Paths and trails – including footpaths, biking or hiking paths, and horse trails (of a permeable material only).

- h. Passive recreation – limited to hiking, biking, horseback riding, picnicking, camping, climbing, hunting, fishing, and wildlife viewing.
 - i. Active recreation including physical education, athletic fields, and supporting athletic elements (such as but not limited to: goals, goal posts, back stops, dug outs, fences, etc.), in minor floodplains based on standards developed. Swimming and non-powered boating on the rivers and streams only (where specific public points of entry have been identified).
 - j. Agricultural activities, but not structures – including crop planting and harvesting, and grazing (subject to appropriate best management practice requirements).
 - k. Silviculture – as required to care for forests and not commercial forestry (limited to forest preservation and tree planting; limited tree clearing and clearing of invasive species; tree trimming and pruning; and removal of individual trees; subject to appropriate best management practice requirements).
 - l. Planting native vegetation (subject to appropriate best management practice requirements).
 - m. Conservation – including stream restoration projects, facilities and activities; Adopt-A-Stream programs; scientific, nature and archaeological studies; and education programs.
19. Full density credit will be provided for the gross area of the RSCOD on a given parcel when that parcel is being developed.
 20. The County will maintain a working relationship with the Federal Insurance Administration of the Federal Emergency Management Agency (FEMA) for continued participation in the National Flood Insurance Program (NFIP). The County will also commit resources to maintain the County's flood maps as a Cooperating Technical Community (CTC) in FEMA's Flood Map Modernization program.
 21. The County will promote and encourage participation in the "Adopt-A-Stream" programs in order to keep river and stream corridors free of litter and debris and as a means of promoting public awareness of the County's river and stream corridors.
 22. The County will develop a reliable wetlands inventory and map of wetland areas both inside and outside of the RSCOD Countywide. This inventory and map will include identification of specific vegetative cover and hydrology information such as soil drainage and hydric soils.
 23. The County will support the federal goal of no net loss to wetlands in the County and will identify optimum receiving sites with priority to each geographic Policy Area within the RSCOD for the construction of new wetlands in association with adjacent stormwater management best management practices or required as part of federal wetland mitigation programs.
 24. The County will study the design and implementation of the RSCOD with rivers and streams draining 70 acres or more and adjacent steep slopes of 15 percent or greater.

B. Scenic Rivers and the Potomac River

The Catoctin Creek from Waterford to the Potomac River, and Goose Creek from the Fauquier and Loudoun County lines to the Potomac River, are "Scenic Rivers" as designated by the Commonwealth of Virginia. The Scenic Rivers Program provides these rivers special status through legislative designation and aids in establishing appropriate protection and management standards to maintain their scenic value. The Goose Creek and Catoctin Creek Scenic River Advisory Boards, appointed by the Governor of Virginia, actively seek to preserve the integrity of these rivers and their surroundings.

As an important part of the County's river and stream corridor system, protection of these Scenic Rivers will also be coordinated with the County's River and Stream Corridor Overlay District (RSCOD) policies and regulations. The County will also work to preserve the scenic character of its Potomac River shoreline by creating Loudoun's portion of the Potomac Heritage Trail. Open space easements have already been placed on much of the Potomac River shoreline east of Route 28 as part of this effort.

Scenic Rivers and Potomac River Policies

1. The County will protect Scenic Rivers and the Potomac River by defining a protection area as a 300-foot no-build buffer or the RSCOD, whichever is greater. Development potential may be transferred from the no-build buffer according to density transfer guidelines provided by this Plan. The RSCOD performance standards, best management practice requirements and list of permitted uses will apply to the no-build buffer.
2. The County will define and identify the viewsheds along these waterways and establish policies to guide development in these areas in order to protect their environmental and scenic quality.
3. The County will complete and execute a plan for acquiring and managing open space corridors along the County's officially designated Scenic Rivers.
4. The County will not permit diversion of Scenic Rivers under any circumstances.
5. The County will prepare and implement corridor management plans for the County's Scenic Rivers.
6. The Zoning Ordinance will be amended so that docks will be Special Exception uses, designed and built to maintain the existing natural and scenic character of the shoreline of Scenic Rivers.
7. The County will develop and implement a Potomac River shoreline management plan, and seek to coordinate this effort with adjacent jurisdictions (local, state, regional organizations, advisory boards, and citizen groups). This Plan should include:
 - a. The boundaries of the study area;
 - b. A comprehensive natural resources inventory;
 - c. Policy recommendations for river corridor management and protection;
 - d. A process for integrating the participating groups; and
 - e. A plan for acquiring and managing open space corridors along the Potomac River with a preference given to mechanisms such as proffers, other donations, and purchase in efforts to acquire land and/or easements.
8. The County will establish a strategy to expand passive recreational use of Scenic Rivers and the Potomac River. This strategy will be consistent with the overall Green Infrastructure policies and will prohibit ground-disturbing activities such as paved road and structure construction.
9. The County will seek proffers from developers for public access trails along the Potomac River and designated sections of Goose and Catoctin Creeks.
10. The County will seek to complete its portion of the Potomac Heritage Trail through public and private efforts as proactively coordinated with County resources.

C. Surface and Groundwater Resources

Major water resource issues for the County include ensuring an adequate supply of drinking water, protecting groundwater and surface water (i.e., streams and wetlands) from contamination and pollution, and preventing the degradation of water quality in watersheds. (Refer to Major and Sub Watersheds Map, pg. 5-13)

For most of the County's history the threats to surface and groundwater quality have been from rural land use. Soil erosion, nutrient enrichment, fecal coliform contamination, and various toxic chemicals have contributed to the degradation of surface and groundwater quality. Currently, nine stream segments in Loudoun have been placed on the state's impaired waters list by the Virginia Department of Environmental Quality (DEQ) for excessive levels of fecal coliform. As shown on the Virginia Impaired Water Segments 1998 list, they are:

- Catoctin Creek for 7.4 river miles.
- North Fork Catoctin Creek for 10.53 river miles.
- South Fork Catoctin Creek for 6.01 river miles.
- Little River for 6.25 river miles.
- Piney Run for 3.87 river miles.
- Cromwell's Run for 3.81 river miles.
- Sycolin Creek for 6.83 river miles.
- Beaverdam Creek (western) for 6.43 river miles.
- North Fork Goose Creek for 4.5 river miles.

Groundwater, supplied through wells and springs, is the primary source of drinking water for residents of the western Towns and rural areas. Additional factors such as poorly sited drainfields and drainfield saturation, high water tables, lack of septic tank maintenance, leaking sewer lines, improper disposal of household hazardous waste, and leaking or abandoned underground storage tanks can threaten the quality of wells, springs and groundwater. In addition, a preponderance of on-site, in-soil sewage disposal and wastewater treatment systems used in this part of the County has the potential to directly impact individual health as effluent passes directly into the groundwater that feeds the wells that provide drinking water.

The rapid development of eastern Loudoun since the mid-1990s has brought a new set of water resource challenges, including an increase in impervious land cover. Rainwater that once filtered through the soil to replenish groundwater is now kept above ground artificially and carried via culverts and stormwater pipes directly to local streams. This diminishes groundwater capacity, which is particularly noticeable in the summer months as streams dry up, and aquatic habitats are damaged. The County's hydrologic soil groups and hydric soils can be indicators of surface water saturation, runoff, and infiltration rates. (Refer to Hydric Soils Map, pg. 5-15)

Streams are damaged as they take in stormwater from man-made systems, which transport water in much higher volumes and at much greater velocities than natural systems. The rushing water causes streambed scouring, as well as erosion of stream banks. Stormwater is also polluted by substances deposited on the impervious ground cover such as litter, road salt, oil, grease, and metals from automobiles.

The establishment of the River and Stream Corridor Overlay District (RSCOD) is key to protecting Loudoun County's water resources. Protecting rivers and streams, retaining natural riparian forests and vegetation, protecting wetlands; and preservation, buffering, and the implementation of performance standards and best management practice requirements in developing and redeveloping areas are all necessary components of a water protection strategy. At the same time, development should be guided by flexible regulations that encourage innovative site design and mitigation measures in order to protect the natural environment and protect and improve water quality.

A number of state and federal mandates now require the County to take on certain water protection responsibilities in addition to the federal Clean Water Act. Under these programs, maximum pollutant loads will be set by the state for a number of County streams. The programs also require the County to control pollution from land uses served by storm sewer to the maximum extent practicable.

Two sets of policies—one for Surface Water and one for Groundwater—are provided below. These policies establish County water quality goals, define protective measures and management objectives, and establish development parameters for areas around water sources.

Surface Water Policies

1. The County will fully protect, through easement, fee simple acquisition, regulatory measures or other sufficient measures, the lands that are critical to the quality of key water supplies. These areas will be re-naturalized, if necessary, to restore filtration and erosion control functions.
2. The County will promote water conservation through innovative, cost effective reuse systems, domestic water saving devices, and low impact development techniques, which integrate hydrologically functional designs with methods for preventing pollution and through informed household use.
3. The County will protect the headwaters of the Catoctin and Goose Creeks by establishing appropriate regulations for the Catoctin, Shorthill Mountain and the Blue Ridge, to limit diversions of water from the headwaters and to prevent stream pollution.
4. The County will support community programs to keep shorelines and water bodies free from debris and litter.
5. The County will establish appropriate standards including adoption of the Virginia Stormwater Management Handbook to protect natural streams from the harmful effects of increased stormwater volume and velocity resulting from development.
6. The County recognizes that soil erosion and deposits of sediment in receiving streams and water bodies is the single largest contributor to degradation of stream water quality and loss of aquatic habitat. The County will establish appropriate standards by which to regulate erosion and sedimentation.
7. The County will establish appropriate standards and land uses to protect drinking water supplies from depletion and pollution.
8. The County will protect the Bull Run as an important regional water source and supplier to the Occoquan Reservoir by defining a protection area as a 300-foot no-build buffer or the RSCOD, whichever is greater. An additional 200-foot transitional buffer will also be maintained beyond the no-build buffer. Development potential may be transferred from the no-build buffer according to density transfer guidelines provided by this Plan. The RSCOD performance standards, best management

practice requirements and list of permitted uses will apply to the no-build buffer. Performance standards and a list of permitted uses for the transitional buffer will be defined as part of the implementation of this policy.

9. The County will develop and implement a watershed management plan and a watershed overlay district for all public water supply reservoir watersheds, establishing more stringent development guidelines and performance standards to protect water quality.
10. The County will protect public water supply reservoirs by defining a protection area for all reservoirs as a 300-foot no-build buffer or the RSCOD, whichever is greater. Development potential may be transferred from this buffer area according to density transfer guidelines provided by this Plan. The RSCOD performance standards, best management practice requirements and list of permitted uses will be applied to the no-build buffer.
11. In cooperation with the LCSA, the County will set the limits of the 300-foot no-build buffer for reservoirs based on their projected expansion, so that when the proposed expansion occurs the 300-foot buffer will already be established and the area protected from development.
12. To further protect public water supply reservoirs and their contributing streams beyond established protection buffers, the County encourages the clustering of development away from designated public water sources and reservoirs and their buffers.
13. The County will work with the incorporated Towns, in conjunction with the Clean Water Act, to establish overall water quality goals and specific standards for individual streams and river and stream corridors, consistent with county river and stream corridor objectives and policies.
14. The County will prepare and implement a pollution prevention program to improve the County's surface water quality in a proactive fashion by working with other entities such as the Loudoun County Soil and Water Conservation District (LSWCD) to coordinate and technically reinforce various ongoing water quality activities and efforts.
15. The County will comply with Phase II National Pollutant Discharge Elimination System (NPDES) stormwater regulations under the federal Clean Water Act, which requires the County's municipal storm sewer system to be regulated as a discrete source of pollution. The County will meet NPDES requirements prior to the permit filing date in 2003. The Clean Water Act requires regulated jurisdictions, including Loudoun, to address six components of a surface water quality management program to obtain an NPDES permit. These include: (1) public outreach and education; (2) public involvement and participation; (3) illicit discharge detection and elimination; (4) construction site stormwater runoff control; (5) post-construction stormwater management; and (6) pollution prevention, or "good housekeeping", for municipal operations.
16. The County will prepare and implement design standards and principles to preserve open space and natural resources, minimize the creation of new impervious areas and to minimize increases in post-development runoff peak rate, frequency and volume. To the extent possible, these alternatives will recognize the unique characteristics of different properties and the densities and uses recommended by this Plan.
17. The County will establish appropriate standards by which to regulate stormwater detention or retention to better protect the integrity of receiving streams.

18. The County will institute development standards for golf courses and restrict development of golf courses in proximity to water resources such as streams, rivers, reservoirs or floodplains to deter any degradation of these resources as a result of the golf course use. Golf courses may be allowed within the boundaries of floodplains only by Special Exception.
19. In suburban areas, water access should be provided for recreational uses. These areas will be designated in local area plans. Where paved surfaces are needed, they should be constructed of pervious paving materials when structurally feasible.
20. Loudoun County will endorse and actively support the interstate Chesapeake 2000 Agreement, a water-shed partnership signed by the governors of Virginia, Maryland, and Pennsylvania, as well as the District of Columbia and the U.S. Environmental Protection Agency (EPA). The Agreement commits Virginia to: (1) living resources protection and restoration; (2) vital habitat protection and restoration; (3) water quality restoration and protection; (4) sound land use; and (5) individual responsibility and community engagement.
21. The County will require secondary containment, treatment, and emergency response plans for activities that propose pollution sources such as the storing and dispensing of petroleum products, chemical storage and sale or transfer of potential contaminants.

Groundwater Policies

1. The County will develop and implement a comprehensive groundwater protection strategy and use available data such as that generated by the U. S. Geological Survey (USGS) in the development of such a strategy.
2. The County will develop, implement, and maintain a wellhead protection program to protect groundwater from contamination and ensure an adequate level of drinking water quality for the residents of rural Loudoun and western Loudoun Towns that are dependent on groundwater as a water source. In addition, the County will refine and strengthen existing water protection policies and regulations.
3. The County will initiate and maintain a comprehensive pollution management program to protect groundwater resources.
4. The County will periodically assess the recharge rates for groundwater in each watershed by analyzing data from groundwater level monitoring and stream flow measurements. If negative impacts are detected, the information will be presented to the Board of Supervisors for appropriate action, which may include an adjustment to the land use policies within the impacted area.
5. The County will assess the effects of groundwater consumption on the volume of surface water in streams for each watershed and develop and implement regulations to minimize those effects.
6. The County will require developments in the Suburban Policy Area to connect to available central water and sewer systems according to water and wastewater treatment policies in this Plan.

D. Geologic and Soil Resources

1. Limestone Conglomerate Areas

The County seeks to preserve and protect the unique geologic characteristics, natural beauty, tourism potential, and the quality of groundwater in its limestone conglomerate areas. Limestone conglomerate is vulnerable to sinkholes, cavity collapse and ground slippage and cannot environmentally or structurally support land development activities without performance standards and monitoring.

A belt of limestone conglomerate lies north of Leesburg and east of the Catoclin Ridge. (Refer to Limestone Conglomerate Bedrock Map, pg. 5-21) The bedrock in this area includes limestone suspended in a mixture of other geologic materials. Limestone is a carbonate rock and is subject to weathering and the formation of solution channels and sinkholes. In places, limestone bedrock also forms outcrops. Rock outcrops, sinkholes and solution channels function as conduits to the groundwater system that may be susceptible to contaminated surface run-off, leaky fuel tanks and septic tank effluent. Because the location of these channels is not well known, development risks should be considered to exist throughout the limestone conglomerate area.

Increased surface water run-off from development in this area can lead to increased cavity collapse and ground slippage which may affect sewage lagoons, ponds, pipelines and cause groundwater pollution. Ground slippage may also threaten the stability of foundations and structures built on these natural features and overlying soils.

To address the environmental and human health and safety issues in this critical area, the County will establish and maintain zoning regulations for a Limestone Conglomerate Overlay District. This zoning district will be used to support surface and groundwater monitoring, the setting of pollution prevention standards, and the establishment of performance standards governing land use and development.

Limestone Conglomerate Policies

1. The County will define and delineate a Limestone Conglomerate Overlay District based on soil and geologic characteristics.
2. Performance standards will be developed and applied to govern development on areas underlain by limestone because of a high potential for environmental damage, and to ensure public health and safety, including minimum setback distances from sinkholes, rock outcrops, and other Karst features.
3. The County will limit development to large lot or clusters within the Limestone Conglomerate Overlay District to avoid development in areas of identified Karst features.
4. Environmental protection performance standards will be developed and applied for lands within the Limestone Conglomerate Overlay District that do not have rock outcrops.
5. Agriculture, forestry, and passive recreation will be by-right uses in the Limestone Conglomerate Overlay District, but will be subject to performance standards.
6. The County will identify pollution sources and establish appropriate standards for reducing pollution in the Limestone Conglomerate Overlay District.
7. The County will monitor groundwater and surface water in the Limestone Conglomerate Overlay District, and if monitoring recognizes negative impacts, the County will present the information to the Board of Supervisors for appropriate action, which may include an adjustment to the land use policies within the impacted area.

8. The County will require approval of communal water and wastewater systems for new development in the Limestone Conglomerate Overlay District, unless it is demonstrated to the County that other types of systems achieving the same or superior performance standards are suitable.

2. Prime Agricultural Soils

Prime agricultural soils (as defined by the U.S. Department of Agriculture) are soils that are best suited for agricultural use. These soils account for approximately 19 percent of Loudoun County's soils, and are usually found in areas that are nearly level, well drained and watered. Loudoun's best agricultural soils are generally located in the Rural Policy Area. (Refer to Prime Agricultural Soils Map, pg. 5-23)

Because the County has emphasized the rural economy as an important part of its overall economic health, prime farmland and agricultural soils are especially valuable. Once this land-based resource is lost, it cannot be reclaimed. However, like other natural resources in the County, prime agricultural soils are being threatened by residential development. This is because agricultural land is also well suited for development; being well drained, generally found on mildly sloping terrain, and with good drainfield potential.

Soil erosion from development and improper soil management is becoming a significant threat to this resource. Implementation of Prime Agricultural Soils policies will be coordinated with the County's Erosion and Sediment Control Ordinance and other state and federal programs to appropriately deal with these potential problems. They will also be coordinated with the State Use Value Assessment Program and County-designated Agricultural and Forestal Districts. (Refer to Agricultural Districts Map, pg. 5-27)

Prime Agricultural Soil Policies

1. The County will utilize the Use Value Assessment Program, Agricultural and Forestal Districts and other incentive-based efforts at its disposal to encourage preservation of Prime Agricultural Soils for agricultural uses. The County will improve the Use Value Assessment Program and will develop and implement additional incentive-based regulations, if necessary, to better achieve these purposes.
2. Where development is allowed on prime agricultural soils, the County will require cluster development so that the development will take place on the least desirable soils on the site and the prime soils will be available for agricultural purposes. The quality of soils will be considered in the conservation design process established by the Zoning Ordinance.
3. Where applicable, the County will use the stormwater management and erosion control policies in this plan and in the Loudoun County Erosion and Sediment Control Ordinance to enhance conservation of Prime Agricultural Soils for agricultural uses. The County will improve the Loudoun County Erosion and Sediment Control Ordinance, if necessary, to better achieve these purposes.
4. The County will develop a public education program that will focus on communicating incentive advantages associated with private protection of Prime Agricultural Soils. The County will maintain and make available the Prime Agricultural Soils Map as part of this program. The program will also provide information on the donation of easements, tax and estate planning, and other advantages related to voluntary protection.
5. The County will seek the preservation of prime agricultural soil resources for agricultural, horticultural, and forestal use through regulatory and incentive programs such as the Purchase of Development Rights (PDR) program.

3. Mineral Resource Extraction Areas

Diabase is a hard, brittle rock used as a base component for construction of roads and for building foundations. There are defined belts of this rock, also known as trap rock, south of Leesburg and near Washington Dulles International Airport. These resource areas should be protected from incompatible land uses, particularly residential. Soils with high shrink-swell characteristics often lie on top of these diabase belts and can cause cracked foundations and severe structural damage to buildings.

The crushed-stone quarries that extract diabase are a substantial economic resource. Loudoun County diabase is some of the best rock for concrete and road base material found on the East Coast. Continuing construction activities in the greater Washington area will also ensure that diabase continues to be an important local economic resource.

Quarrying operations and related activities in diabase resource areas present a challenge to County land use planning, because, although they contribute greatly to the County's economy, they may also threaten groundwater and surface water quality. They are also a heavy industrial use and generate heavy truck traffic. The site-specific nature of extraction industries may help the County focus protection on key diabase resource areas. Encouraging buffers or compatible uses on adjacent tracts and adequate transportation routes is part of this effort. The County may also minimize the long-term result of diabase extraction by looking for ways to reclaim abandoned quarries for other uses. The County will establish and maintain zoning regulations for a protective quarry zoning district, and will emphasize the continued viability and compatibility of this important industry.

Mineral Resource Extraction Policies

1. Quarrying is an industry based on the natural resources of the County and shall be encouraged and the resource protected.
2. The County will recognize and protect its viable extraction industry. The County will protect viable quarries and its diabase resource areas from incompatible neighboring uses. New development will take existing quarries into account.
3. The County will foster efficient use of its diabase resource. To help achieve this goal, the County will maintain a quarry zoning district that should provide a total of at least 800 acres in Loudoun County to be set aside for extraction and associated activities. The quarry zoning district will make quarrying a permissible use. No residential uses other than watchman's quarters will be permitted in this district. Non-residential uses will be limited to low coverage, heavy industrial uses that will not be adversely affected by quarry operations.
4. Quarry zoning districts should be located on areas where quarries presently exist and/or in industrial communities where the diabase is within the Ldn 65-noise contour of an airport. Areas within the 65 Ldn noise contour and adjoining existing quarries should be preserved for this purpose.
5. The County will facilitate the long-range planning of quarry sites, including setting aside sufficient land for extraction and creating an environment that will be attractive for future users once the quarrying use is no longer viable.
6. The County will develop and apply standards that seek to protect existing and planned neighboring uses from the negative impacts of resource extraction activities. Such negative impacts might include threats to property values, public health and safety, as well as short- and long-term environmental degradation. Such impacts will be mitigated by buffer requirements, noise mitigation requirements, and other mitigation techniques.

7. Diabase extraction activities must be located with direct access to roads that are constructed to industrial standards. These standards will be applied so that quarries have adequate roads linking them to the regional road network.
8. The County will encourage the innovative and sensitive reuse of quarries and resource extraction sites.
9. An application to permit the development of new quarries or the expansion of existing quarries will include a concept plan for use of the site after extraction is complete.

4. Steep Slopes and Moderately Steep Slopes

Steep slopes and moderately steep slopes occupy an area of approximately 53,000 acres in the County. (Refer to Steep Slopes Map, pg. 5-29) Moderately steep slopes are areas with a 15 to 25 percent grade (identified by Slope Class D on Loudoun County soil maps). Steep slopes refer to more environmentally critical slopes of greater than 25 percent (identified by Slope Class E on Loudoun County soil maps). If improperly used and disturbance occurs, these areas could experience erosion, building and/or road failure, downstream flooding, and other hazards. For this reason, the grade of a steep slope is often a factor of unstable soils. Development on steep slopes often requires high volumes of clearing and “cut and fill.” Such earth moving is subject to erosion and sedimentation that causes adverse effects on surface water quality and aquatic habitat.

Steep slopes represent a resource as well as a constraint to development. Steep slopes protected as part of a river and stream corridor or mountainside often serve as forested and vegetative areas that filter stormwater run-off and support various plant and wildlife habitats.

The Steep Slope and Moderately Steep Slope policies apply to all steep and moderately steep slopes in the County that are not “adjacent” to a river and stream corridor (as defined in the RSCOD) or located on the mountainside. River and Stream Corridor Resource and/or Mountainside policies govern steep slopes located in those areas.

Steep Slope and Moderately Steep Slope Policies

1. The County will prohibit land disturbance on slopes with a grade of more than 25 percent and/or with the soil Slope Class of E.
2. The County will prohibit construction of roads on slopes with grades over 25 percent with the exception of access easements to existing lots where no other access is possible. Performance standards will be applied to protect the soils, vegetation and other environmental features in areas in which these roads are allowed by special exception.
3. Special performance standards are to be used to protect slopes with grades from 15 to 25 percent and/or with the soil Slope Class of D. These standards will include best management practices, locational clearances for clearing and grading, and approval of natural drainageways.
4. There will be no building on unstable soils, including soil series Morven (soil mapping unit 13), Airmont (27 and 59), Lew (88), and Springwood (90 and 91) as described in the County’s Interpretive Guide to the Use of Soils Maps in Loudoun County, Virginia.
5. The County will encourage development rights to be sold, donated or proffered from land with a 15-to-25 percent grade.

5. Mountainside Areas

The County's mountains and mountainside areas contribute to its beauty, quality of life, and geologic uniqueness and are valued by residents and visitors. Mountainsides are highly sensitive to land disturbance and development. In addition to the destruction of prime viewsheds, uncontrolled land disturbance within mountainside areas can cause major soil slippage if trees and vegetation are removed; the soil is disturbed through cutting, filling or blasting; or the moisture level is upset by excessive drawdown or increased water runoff. Mountainsides contain the headwaters to many of the County's streams and are important groundwater recharge areas. They are the location of unique flora, vegetation, and plant communities and provide a variety of wildlife habitats. These features create an environmental system that is unique to this region and that contributes to the scenic character of rural Loudoun County.

The County will control development on the mountain-sides through a Mountainside Development Overlay District (MDOD) that contains land use restrictions and performance standards to minimize the destruction of individual resources and the disturbance of the ecological balance of these resources. The boundaries of the MDOD are based on a range of both technical and aesthetic resource factors for the critical resource elements that include:

- Elevation: Above 700 feet mean sea level for the Short Hill and Blue Ridge Mountains and 550 feet for the Catocin, Hogback, and Bull Run Mountains.
- Soils: Associated with mountainsides that affect groundwater recharge, slippage potential, and suitability for onsite sewage disposal systems.
- Slopes: Moderately steep slopes (15 to 25 percent) and steep slopes (greater than 25 percent).
- Forests: The quality and extent of tree cover, woodlands, and forests.

Mountainside areas are divided into the following areas depending on the elevation and the types of resources present as determined by weighted analytical criteria:

- **Somewhat Sensitive:** Areas at lower elevations with slight or limited environmental and public health, safety, and welfare impacts from development.
- **Sensitive:** Areas at lower elevations with potentially moderate environmental and public health, safety, and welfare impacts from development.
- **Highly Sensitive:** Areas with potentially severe environmental and public health, safety, and welfare impacts from development and all land at higher elevations.

Mountainside Policies

1. The Mountainside Development Overlay District will be defined by elevation, soil types, and the presence of certain natural features such as forests, steep slopes, unstable soils, and groundwater recharge areas that are commonly associated with these areas.
2. All subdivisions of three lots or more will require a Special Exception in Sensitive and Highly Sensitive defined areas.
3. The County will manage development in mountainside areas using performance standards and regulations to minimize negative environmental impacts, minimize land disturbance, protect the ridgelines, maintain woodlands, plant, and wildlife habitats; and preserve natural features and rural character as requirements for approval of the location of proposed development.

4. The County encourages that mountainside areas be placed under permanent open space easement using voluntary donation and public investment through the Purchase of Development Rights program.
5. The County will seek the expansion of recreational opportunities in mountainside areas, including the development of public park sites and improving access to existing recreational facilities such as the Appalachian Trail.
6. Non-compliance with the policies and associated adopted performance and land use standards will be subject to fines and remediation requirements. The County will exercise strict enforcement practices to ensure the preservation of the Mountainside Development Overlay District.

E. Forests, Trees and Vegetation

Loudoun County has some of the state's best hardwood stands for lumber and veneer production. The County's forests and trees also improve air and water quality, offer important habitat for birds, small mammals and other wildlife, and are excellent buffers between communities. Forests and trees conserve energy by providing shade and evaporative cooling through transpiration. They also reduce wind speed and redirect airflow; reduce stormwater runoff and soil erosion; and can increase real property values. Riparian forests along streams provide the greatest single protection of water quality by filtering pollutants from stormwater runoff, decreasing stream bank erosion, and maintaining the physical, chemical, and biological condition of the stream environment.

Because forests and trees are such a valuable resource in Loudoun, they will be protected for current and future use and enjoyment by establishing a Tree Preservation Ordinance that protects large forest areas, urban forests and individual trees, while preserving existing vegetation and protecting plant and wildlife habitats. Existing vegetation is a superior habitat resource for new tree plantings because they retain essential ecosystem components that support tree and forest re-growth.

The County will require tree conservation plans to be submitted and approved for each developing parcel at the time of the initial land development application. These plans should be reviewed for conformance with minimum viability standards and the likelihood of long-term forest, tree and vegetation survival.

Forests, Trees and Vegetation Policies

1. The County will seek and encourage—through incentives—the preservation, protection, and management of forest resources for their economic and environmental benefits.
2. Forests and indigenous vegetation will be preserved on steep slopes (greater than 25 percent). On moderately steep slopes (15-to-25 percent grade), clearing will be limited to only essential clearing necessary for home construction, road construction and utility installation. Silviculture activities may be allowed on moderately steep slopes provided that an approved Forest Management Plan is implemented.
3. The submittal and approval of a Forest Management Plan will be required prior to any land development. This plan will demonstrate a management strategy that ensures the long-term sustainability of any designated tree save areas.
4. The County will require property owners pursuing silviculture operations to develop Forest Management Plans using resources available through the Virginia Department of Forestry.
5. The County will promote the preservation of forested areas through the use of Agricultural and Forestal Districts, easements and other voluntary means.

6. Forests are an integral part of the Mountainside Development Overlay District regulations. The County will continue to protect forest resources through the implementation of the Mountainside Development Overlay District.
7. Tree protection will be encouraged along roadways to allow trees to provide shading, reduce peak storm flows, and contribute to the enhancement of the Green Infrastructure.
8. The County will develop and adopt a Tree Preservation Ordinance for the three Policy Areas in the County as a priority.
9. The County will inventory and map, and create and maintain a database of trees and indigenous vegetative resources to be preserved or managed in accordance with County standards. The inventory will include, but not be limited to, old growth forests, significant tree stands, specimen trees, heritage trees, and State or National Champion trees.
10. The County will develop and apply incentive-based approaches to encourage the preservation of existing vegetation and wildlife habitat on developing properties as a priority.
11. The County will explore the protection of inventoried flora, vegetative cover, and plant communities through both regulation and incentive-based approaches.

F. Plant and Wildlife Habitats

Plants and animals play an important role in nature's lifecycle and its ecosystems. For wildlife habitats, large contiguous parcels of natural open space are preferable to more numerous, but disconnected and smaller areas.

While many high-quality plant and animal habitats have already been lost or altered due to land development, the County still has a number of unique and natural habitat areas. The largest contiguous areas of forest and naturally vegetated land are on mountainsides and along stream channels. These areas play a key role in preserving the abundance and diversity of the County's remaining plant and wildlife. They are also a part of the Blue Ridge ecosystem, a 550-mile, contiguous natural area of parks, national forests, federal wilderness and the Appalachian Trail that extends from Georgia to Pennsylvania.

The integrated Green Infrastructure approach will help to prevent habitat fragmentation, while enhancing ecological connections with larger natural areas. The County will strive to protect, preserve, and create large-scale plant and wildlife habitats that overlap with other important resources and resource systems within the Green Infrastructure.

The County will also protect habitat for rare, and threatened and endangered plant and animal species in accordance with the Federal Endangered Species Act. The health and survivability of plants and animals can often foretell future environmental threats to human life and health. Therefore, the County will encourage the study of the biological processes within the natural resource elements of the Green Infrastructure.

Plant and Wildlife Habitats Policies

1. The County will seek to protect areas of natural biodiversity and rare, threatened and endangered plant and animal species through regulations that foster the implementation of the Federal Endangered Species Act.

2. One strategy the County will pursue to protect rare, threatened, and endangered plant and animal species is to preserve their habitat in open space, passive recreation, or nature preserves.
3. The County will promote and support the establishment of public and private nature preserves throughout the County, in addition to Banshee Reeks, as part of the protection of the Green Infrastructure.
4. The County will conserve and protect wildlife habitat through the preservation of a broad range of natural resources such as indigenous vegetation, forest cover, woodlands, floodplains, streams and stream corridors, wetlands, and undeveloped areas associated with steep slopes.
5. The County promotes the preservation and management of existing vegetative cover, and riparian, habitat and wildlife travel corridors (i.e., fencerows and stream valleys) for their native biological diversity and to protect wildlife access to streams and other water sources. Planting of indigenous vegetation will be encouraged and priority will be given to those corridors that connect one or more large, intact nature preserves.
6. The County will establish and implement guidelines and/or incentives to protect wildlife habitat in an effort to protect a broad range of natural resources that cover large areas such as river and stream corridors and mountainsides.
7. The County promotes the protection of the County's vegetative and wildlife resources and the creation of wildlife habitats by encouraging the incorporation of indigenous vegetation into the landscape design of new development and encouraging a compact, concentrated development pattern.
8. The County will use the Virginia Department of Conservation and Recreation, Division of Natural Heritage's Biological and Conservation Data system to identify Loudoun County's natural heritage resources. These resources include rare, threatened and endangered plant and animal species; exemplary natural communities, habitats, and ecosystems; and other natural features of the County. The County will apply this information in the evaluation of development proposals. For those development applications that have a likely presence of one or more natural heritage resource, the County will require the applicant to conduct a species assessment and develop a plan for impact avoidance in cases where the presence of the species is identified.
9. The County will encourage the study of natural heritage resources by qualified research organizations such as the Virginia Division of Natural Heritage of the Department of Conservation and Recreation.

Group Two: Heritage Resource Assets

This group includes elements of the Green Infrastructure that have past or present cultural or heritage significance for the County. The identified historic, archaeological and scenic resources, through their preservation and inclusion in the Green Infrastructure, will enrich and perpetuate the County's heritage. These elements are or will mostly be in private ownership, while the public's interest will be addressed through various stewardship and management approaches. Regulation of protective buffers, donation of open-space easements, and performance standards will be used to manage these elements and their relationship to other Green Infrastructure elements with the County. A number of implementation instruments will also be employed, including state and federal programs, County historic districts and zoning regulation, mapping and surveying, and the application of conservation design.

A. Historic and Archaeological Resources

The County has an unusually high number of historic and prehistoric sites that, along with scenic resources, farms and open spaces, are major components of its unique rural character and economy. Over 1,100 historic structures and sites and over 300 archaeological sites have been surveyed and mapped; and there is potential for identifying many more. These heritage structures and sites comprise a valuable resource that has enormous cultural, aesthetic, and economic value to the residents of the County. Along with the rural landscape in which they are set, historic sites represent the County's largest tourist attraction. The County will continue to be aggressive in its efforts to preserve both its heritage and cultural history for the benefit of present and future citizens

Loudoun County was one of the first jurisdictions in the United States to adopt rural historic districts when the first Aldie, Waterford and Oatlands districts were adopted in 1972, followed by the 10,000-acre Goose Creek District in 1977. There are now six County-administered districts, including Aldie, Bluemont, Goose Creek, Oatlands, Taylorstown, and Waterford. (Refer to Historic Districts Map, pg. 5-37) The incorporated Towns of Leesburg and Middleburg also administer local historic districts through their zoning ordinances. The County has 49 sites that are on both the Virginia Historic Landmarks Register and the National Register of Historic Places. There are also five National Historic Landmarks in the County; including Balls Bluff Battlefield, Dodona Manor, Oatlands Plantation, Oak Hill, and Waterford.

The archaeological sites that are currently mapped are almost entirely prehistoric Native American sites, some of which date to 8,000 BC. Most of the identified prehistoric sites are east of Leesburg where there is considerable danger of impact from new development, particularly to those sites not in floodplains. These sites represent an important link to the County's past, and every effort will be made to discover and map them before they are lost to development.

Protection for some of the County's historic structures comes from design guidelines contained in the Zoning Ordinance, but the ordinance protects only the designated County-administered historic districts. State and national designations are primarily honorary. Loudoun County will continue its existing protection programs, but refine its policies and regulations to address the potential impacts of land use changes on heritage resources.

In many cases, historic structures are closely linked to their settings. Open space and scenic corridors help to define the context of historic and archaeological structures. The County seeks to define a comprehensive heritage resources policy that recognizes that protecting the environment and rural character of Loudoun County is fundamental to the preservation of valuable historic structures and archaeological sites.

Historic and Archaeological Resources Policies

1. The County will conduct a comprehensive survey of its heritage resource base and will prepare and implement a plan for the preservation and promotion of these resources as an integral part of the economy.
2. The County will base its historic, architectural and archaeological resource strategy on the following:
 - a. Preservation of the County's cultural and scenic character by conservation of archaeological sites and historic structures and their settings and major publicly-accessible geological features such as rock outcrops which reveal the County's geological evolution and heritage.
 - b. Establishment of land uses compatible with historic, open space, and scenic view areas.

3. The County will conduct a comprehensive architectural and archaeological survey of the County's historic and prehistoric cultural resources. Under federal guidelines, any structure fifty years old or older should be evaluated for historic significance based on criteria set forth in the U.S. Secretary of the Interior's Standards for Archaeology and Historic Preservation (National Historic Preservation Act [16 U.S.C. 470]). Simultaneously, the County's cultural resource inventory will be updated through the land development process.
4. The County will evaluate the historic or archaeological value of inventoried resources based on criteria set forth in the Secretary of the Interior's Standards that include historic content and site integrity. Resources will be evaluated for consideration for State and National Registers.
5. The County will maintain its database by using the County's inventory of cultural resources as a dynamic body of data to be reevaluated as needed and as dictated by land use changes.
6. Concurrent with the countywide cultural resource inventory and evaluation, the County will formalize its research materials and general policies by developing a Preservation Plan for review and adoption by the Board of Supervisors. The Preservation Plan will be incorporated into the County's Comprehensive Plan as the primary planning tool for the protection and preservation of the County's vast cultural resources. Strategies for public education will be addressed in the Plan.
7. Using the data from the comprehensive cultural resource survey, the County will create a County Historic Landmarks Inventory, which will reflect those historic structures and archaeological sites that have local historic value and represent the prehistoric and historic traditions of Loudoun County. Special consideration will be given for the protection of these sites during the development process.
8. The County will protect structures and other features of historic significance in the context of their natural settings and will work with landowners to convey the historic value of the resource to the community at large. Structures and other features of particular historical significance will be retained, restored, or utilized in adaptive reuse as part of a conservation design process.
9. The County will develop incentives for and give preference to adaptive re-use of historic structures as part of new development, and/or will buffer historic structures and landscapes from new development to maintain a measure of historic context.
10. The State Code enables local governments to give partial tax credits for historic residential and commercial renovations. The County will implement this option as an incentive to homebuyers and developers to encourage adaptive re-use and the preservation of historic structures.
11. The County will require an archaeological and historic resources survey as part of all development applications. This survey must include a plan for recordation and preservation of identified resources and measures for mitigation and adaptive reuse.
12. Prior to issuing a demolition permit for a structure fifty years old or older, the County would be required to assess the historic significance of that structure.
13. The County will work with residents to identify and establish additional Historic Districts.
14. The *Historic District Guidelines* will be updated to include new districts as they are established and to recognize and give appropriate importance to the current rural-suburban character of the Goose Creek Historic District.

15. The boundaries of the County's Historic Cultural Conservation Districts will be amended or extended to coincide with the boundaries of the state's corresponding Historic Districts. This applies to Bluemont, Goose Creek, and Waterford. The County will work with the state to extend the state-registered boundary of Aldie to meet the County Aldie Historic District boundary.
16. The County will develop and implement a program of easements and other programs as methods of ensuring preservation and conservation.
17. The County will pursue certified local government status to be eligible to receive grant money earmarked for heritage resource preservation efforts.

B. Scenic Areas and Corridors

While ideas about what is scenic may vary, people generally agree on what areas and places are the most visually appealing. These areas and places often include many of the same resources (or combinations of resources) that are addressed as part of the County's Green Infrastructure. Often, significant scenic resources coexist with historic structures or are a part of a mountainside area, stream valley or other natural setting.

Scenic views are often associated with the roads, highways, rivers, and streams from which they are most often enjoyed; as well as with agricultural lands, mountainsides and other features that make up these vistas. Loudoun's rural roads, agricultural fields, hedgerows, crop fields, farmhouses, barns, crossroad churches, and villages all contribute to the scenic areas and corridors in the County.

The state has designated Routes 15, 665, 662, 673, 681, 690, 704, 719, 722, 728, 731, 734, and a portion of Route 7 (Colonial Highway, from Route 699 to Route 287, approved February 2001), as Virginia Byways. The County will pursue additional Virginia Byways designations for roads such as Charles Town Pike (Route 9), Harper's Ferry Road (Route 773), Route 50 through the Mosby Heritage Area, and Route 626 in its entirety (including Foxcroft, Bloomfield, and Foggy Bottom Roads). The County will also pursue the establishment of the Beaverdam Historic Roadways District for the 32 rural roads identified as historic, and the Evergreen Mill Road Historic Roadway District. Likewise, Catocin Creek and Goose Creek have been designated as State Scenic Rivers; and the County has designated historic, mountainside, and river and stream corridor districts that protect elements of the scenic landscape and critical cultural and natural resources.

Scenic Areas and Corridors Policies

1. The County will prepare special provisions such as additional setback depths, protections against clearing frontage vegetation, and for maintaining stone walls and other features in designated scenic areas and corridors.
2. The County will prepare and implement corridor management plans for the County's Virginia Byways. The County will also work proactively with residents to identify potential roadways for Virginia Byway designation by the Commonwealth.
3. The County will pursue Virginia Byways designation by the Commonwealth for Charles Town Pike (Route 9), Harper's Ferry Road (Route 671), Edwards Ferry Road (Route 773), Route 50 (through the Mosby Heritage Area), and Route 626 in its entirety.
4. The County will work proactively with residents to define and designate Historic Roadway Districts. Through public education and outreach efforts, the County will stress the importance of heritage resource protection and preservation as a means to protect and preserve the character of the County's

rural roads.

5. The County will work proactively with residents to define and designate Historic Access Corridor Districts. Through public education and outreach efforts, the County will stress the importance of heritage resource protection and preservation as a means to enhance the visual experience along the County's corridors leading into and through historic towns and villages.
6. No street or road should be abandoned to a non-governmental owner if the road can be used as part of a planned trail network.

Group Three: Open Space Assets

Group three includes elements of the Green Infrastructure that are best described as man-made open space, including greenways and trails, parks and recreation, public school sites, and open space easements. These elements can enhance the vibrancy of communities by providing public interaction with nature and opportunities for outdoor activity. Open space assets may be held in either private or public ownership or a combination thereof, although public ownership predominates in parks, sport complexes, athletic fields, and greenways and trails.

Regulation of protective buffers, donation of open-space easements, purchase-of-development rights, and performance standards will be used by the County and individual property-owners to manage these elements.

A. Greenways and Trails

The County is committed to establishing an integrated greenways and trails system that will provide for walking, bicycling, and equestrian use. Wherever appropriate, the County system will connect to the system of homeowner association (HOA) trails. The greenways and trails system will provide the vital link between communities and the larger open space assets and natural elements of the Green Infrastructure.

Greenways and Trails Policies

1. The County will prepare and implement a Greenways and Trails Plan identifying desired locations of future greenways and trails and desired connections to neighboring jurisdictions' greenways and trails. Trails may include hiking, biking and equestrian trails. Greenways include areas along rivers and streams that are often ideal for trails. This plan, updated periodically, will be made a part of the Comprehensive Plan.
2. The County's greenways and trails, as depicted in the Greenways and Trails Plan, will serve as a linking element in all policy areas to other components of the Green Infrastructure, and may be used for refuge, recreation, and education. The system should connect to existing trails like the Appalachian Trail in the Rural Policy Area and trails within towns and villages, and link people to the area's natural, recreational, cultural, and commercial resources. Signage on the greenways and trails system will be limited to providing information regarding public facilities, safety, and historic amenities open to the public.
3. The County designates priority trails to include:
 - a. An extension of the W&OD Trail from its present terminus in Purcellville to its proposed terminus in Bluemont with a foot path extending from Bluemont to the Appalachian Trail;

- b. A 2.4 mile shared-use trail from the western terminus of the W&OD Trail in Purcellville, west to Round Hill through Franklin Park;
 - c. A 1.1 mile, pedestrian walkway and bicycle path along Colonial Highway (Business Route 7) between the Town of Hamilton and the Harmony Intermediate School;
 - d. A connector between the W&OD Trail in Leesburg and Whites Ferry on the Potomac River (a 4.5 mile connection);
 - e. The Potomac Heritage Trail (hiking from Fairfax to Harpers Ferry, WV);
 - f. A linear park and shared-use trail along the former Manassas Gap Railroad right-of-way linked to the W&OD Trail, or incorporated into a trail network as depicted on the Green Infrastructure Map on pg. 5-3;
 - g. The development of a shared-use trail from the C&O Canal to the Town of Lovettsville along the Route 287 corridor;
 - h. The development of a three mile shared-use trail between Algonkian Regional Park and Claude Moore Park; serving the northernmost portion of Cascades south to Claude Moore Park and including a bicycle/pedestrian bridge crossing over Route 7;
 - i. Connections to the W&OD Trail, the Sterling, Dulles, Ashburn and Potomac Communities from Route 28 and Loudoun County Parkway corridors and appropriate developments;
 - j. Blue Ridge, Catoctin Mountain, Bull Run and Short Hill shared use trails;
 - k. Pedestrian and shared-use trails along other creeks;
 - l. A multi-use trail along the Berlin Turnpike through the Town of Lovettsville and connecting the W&OD and C&O trails;
 - m. Networks of sidewalks and multi-use trails in each of the Towns.
4. The County will seek through public purchase, proffer, density transfer, donation or open-space easement, the preservation of greenways and the development of trails. Priorities for acquisition and/or development are:
- a. The extension of the W&OD Trail from its present terminus in Purcellville to its proposed terminus in Bluemont with a foot path extending from Bluemont to the Appalachian Trail;
 - b. A connector between the W&OD Trail and Whites Ferry;
 - c. A Short Hill Trail;
 - d. The development of the Potomac Heritage Trail (hiking from Fairfax to Harpers Ferry, WV);
 - e. The development of Blue Ridge, Catoctin Mountain and Bull Run Trails;
 - f. The development of pedestrian trails along other creeks;
 - g. The former Manassas Gap Railroad right of way and preserving or developing this corridor as a linear park and trail possibly linking it to the W&OD Trail, or incorporating into a trail network as depicted in the Green Infrastructure Map and Greenways and Trails Plan;
 - h. Cascades community to Claude Moore Park to the W&OD Trail; and
 - i. Connect Franklin Park to Round Hill and to Purcellville.

B. Parks and Recreation

Regional and county parks are important man-made open space assets of the Green Infrastructure that not only serve their passive and active recreational purposes, but also provide a link between communities and other Green Infrastructure elements. Individual parks and recreational assets are discussed in the Suburban, Rural and Transition Policy Area chapters, while the administrative aspects of the County's parks are addressed in Chapter Three.

Parks and Recreation Policy

1. The County will apply conservation design techniques in the design of new parks and athletic facilities and will locate them to provide links between public facilities and communities, to protect environmental integrity, and to provide buffers between different land uses.

C. Public School Sites

Public schools provide extensive open space in Loudoun's communities. These facilities are used not only for their primary educational purpose, but are also community assets and the focal point for active recreation and after-school programs that benefit the public at-large. Therefore, like parks and recreational facilities, the County recognizes that public school sites should be linked with other elements of the Green Infrastructure and connected through trails and greenways.

General policies for public schools are presented in Chapter Three.

D. Open Space Easements

A number of open space easements can be found throughout the County. (Refer to the Green Infrastructure Map, pg. 5-3) Many complement and protect natural features like rivers and streams, others protect historic locations or key agricultural areas, while others provide recreational and educational opportunities in the form of parks and nature preserves. The County will continue to encourage the use of open space easements as a way to complement and enhance the Green Infrastructure and its elements.

Group Four: Complementary Elements

Group Four includes elements that are not directly a part of the land-based Green Infrastructure but instead, complement it. They include air quality, lighting and the night sky, and the aural environment. These elements are predominantly in private ownership, although some public ownership applies for the airspace that is managed by the Metropolitan Washington Airport Authority (MWAA).

A. Air Quality

Loudoun County's air quality is threatened by air pollution from automobile and aircraft emissions, heating furnaces, and power plants. More efficient and better planned transportation and pedestrian networks, tree preservation and planting, reforestation and preservation of natural landscapes will help minimize the threat to the County's air quality.

In order to meet the federal goals of the Clean Air Act, the County offers an integrated land use approach that protects air quality by planning development in locations that are close to major transportation facilities and transit nodes, reducing the densities in the Rural Policy Area, and promoting and implementing alternative modes of transportation. The policies and guidelines of the *Revised Countywide Transportation Plan* also support this approach.

Air Quality Policies

1. The County will develop land use and transportation policies and measures that tend to reduce single occupancy vehicular trips, vehicle miles traveled, and associated emissions in order to improve air quality. Such measures will support the creation of pedestrian and bicycle facilities, park-and-ride lots, and mass transit options.
2. The County will promote tree planting and preservation as a means to improve air quality.
3. The County will enforce the Virginia State Law (9VAC5-40-5630) prohibiting open burning during an alert, warning, or emergency stage of an air pollution episode as described in Virginia State Law (9 VAC5-70-10 et seq.).
4. The County will comply with the requirements of the Federal Clean Air Act Amendments of 1990 through support of the State Implementation Plan (SIP).
5. Loudoun County acknowledges its location in the Washington, D.C.-MD-VA Non-attainment Area. The County will continue to play an active role on the Metropolitan Washington Air Quality Committee (MWAQC) and the National Capital Region Transportation Planning Board (TPB) and will do its part in the implementation of the Phase II Attainment Plan for the Washington Metropolitan Nonattainment Area, as well as future emissions reduction programs.

B. Lighting and the Night Sky

The beauty of the County's night sky is threatened by excessive and improper lighting. Artificial lighting is intended to be minimized and light pollution reduced while maintaining the primary purpose of lighting for public safety and visibility. The County will develop appropriate regulations and performance standards to promote quality and energy-efficient lighting that will also preserve the natural beauty of the night skies. Application of sound night-lighting standards will reduce light pollution such as glare, energy waste, light trespass, and the deterioration of the natural nighttime environment.

Lighting and Night Sky Policies

1. The County will adopt a lighting ordinance to achieve the following:
 - a. Promote the use of lighting for convenience and safety without the nuisance associated with light pollution.
 - b. Promote a glare-free environment through proper lighting performance standards to improve visibility and enhance public safety.
 - c. Promote appropriate lighting standards to conserve energy.
 - d. Develop appropriate lighting standards to prohibit unnecessary and intrusive light trespass that detracts from the beauty and view of the night sky.

C. Aural Environment

Loudoun County's efforts to protect existing and future residents from increased levels of environmental noise have focused primarily on airport noise surrounding Washington Dulles International Airport and Leesburg Executive Airport. In order to ensure a high-quality environment for both existing and future residents, as well as maintaining the economic viability of these important transportation and economic development resources, an Airport Noise Impact Overlay District was established to impose development restrictions within specified areas.

Public notification of airport impacts on a residential community is required for areas within one mile of the Ldn 60 noise contour. In addition to the notification provision, properties located within the Ldn 60 to 65 range are required to provide acoustical treatment of structures and to grant avigation easements. (Refer to Airport Ldn Contours Map, pg. 5-43)

Loudoun County also has many employment and activity centers that create various levels of noise and require consideration and, in some cases, abatement to meet public welfare and health objectives. The County will strengthen policies regulating noise produced by large-scale construction projects (e.g., use of explosives should be limited by operating hours and/or decibel levels).

The County recognizes that quarries are valuable employment and economic development resources for the County. As such, the Zoning Ordinance provides a Quarry Notification Overlay District that requires notification to residential property owners about the potential noise levels generated by neighboring quarry operations. The ordinance also sets performance standards to limit quarries' hours of operation.

It is also important to protect residential communities near or adjacent to major collector roadways. This is accomplished through the use of passive noise abatement measures such as adequate setbacks, earthen berms, wooden fences, and dense tree vegetation. The County discourages the use of structural noise abatement measures such as concrete walls unless supplemented with appropriate landscaping to enhance the aesthetics of such structures. Abatement barriers should reflect the character of the surrounding natural environment.

To protect residents adjacent to major highways, the County will also require appropriate noise mitigation measures to be incorporated into the overall project design for proposed noise-sensitive development when the absolute values in the Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Levels table are approached or exceeded (see pg. 5-45).

Noise Abatement Criteria (NAC) Hourly A-Weighted Sound Levels

Activity Category	dB(A) Leq (h)	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residential yards, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Commercial uses or developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Airport Noise Policies

1. The County will continue to support the economic viability of Washington Dulles International and Leesburg Executive Airports by continued and complete prohibition of new residential and other noise sensitive land uses from the areas defined by the projected Ldn 65 and greater noise contours for both airports and by requiring non-noise sensitive land uses within these noise impact areas.

2. The County will work with the Metropolitan Washington Airports Authority and the Town of Leesburg to analyze long-term airport noise potential using the Integrated Noise Model in order to project aircraft noise contours based upon assumptions about aircraft fleet mix, generalized flight tracks, and other operating procedures around Washington Dulles International and Leesburg Executive Airports for use in noise abatement policy formulation.
3. The County will continue to work with the Metropolitan Washington Airports Authority to refine airport operations and routes at Washington Dulles International Airport to minimize the effects of noise on multiple and single family lots, schools, and churches, public parks and recreational open space.
4. For the environs of Washington Dulles International Airport, the County will base its Aircraft Noise Compatibility planning efforts upon the map entitled, Noise Exposure Map: Potential with a Preferential Runway Use, Ldn 60 and 65, dated August, 1992, and prepared by KPMG Peat, Marwick for the Metropolitan Washington Airports Authority (MWAA). For the environs of Leesburg Executive Airport, the County will base its Aircraft Noise Compatibility planning efforts upon the Environmental Assessment Report, Leesburg's Godfrey Field, Leesburg, Virginia, dated October, 1985, and prepared by Campbell, McQueen and Paris, Engineers of the Town of Leesburg.
5. An Airport Noise and Overflight Impact Area (ANOIA) is established as part of this Plan and consists of three (3) policy areas: (i) areas outside of, but within one mile of the Ldn 60; (ii) areas between the Ldn 60-65 aircraft noise contour; and (iii) areas within the Ldn 65 or greater noise contour.
6. For areas outside of, but within one (1) mile of the Ldn 60 contour, the County will require:
 - a. Full Disclosure Statement – For all new residential dwelling units to be constructed outside of, but within one (1) mile of the Ldn 60 contour. The applicant will disclose in writing to all prospective purchasers that they are located within an area that will be impacted by aircraft overflights and aircraft noise. Such notification will be accomplished by inclusion of this information in all sales contracts, brochures, and promotional documents, including the Illustrative Site Plan(s) on display within any sales related office (s), as well as in homeowners' association documents, and by inclusion on all subdivision and site plans, and within all Deeds of conveyance.
7. For areas between the Ldn 60-65 aircraft noise contours, the County will require:
 - a. Full Disclosure Statement – For all new residential dwelling units to be constructed between the Ldn 60-65 aircraft noise contours. The applicant will disclose in writing to all prospective purchasers that they are located within an area that will be impacted by aircraft overflights and aircraft noise. Such notification will be accomplished by inclusion of this information in all sales contracts, brochures, and promotional documents, including the Illustrative Site Plan(s) on display within any sales related office (s), as well as in homeowners' association documents, and by inclusion on all subdivision and site plans, and within all Deeds of conveyance.
 - b. Acoustical Treatment – For all new residential units located between the Ldn 60-65 aircraft noise contours. The applicant will incorporate acoustical treatment into all dwelling units to insure that interior noise levels within living spaces (not including garages, sunrooms, or porches) do not exceed a sound level of 45 db(A).
 - c. Avigation Easements – For all new residential dwelling units to be constructed between the Ldn 60-65 aircraft noise contours. Prior to or in conjunction with the approval of a rezoning application, the applicant of a parcel or parcels contained within the Ldn 60-65 aircraft noise impact area associated with Washington Dulles International Airport, should proffer the dedication

of aviation easements to the Metropolitan Washington Airports Authority, indicating the right of flights to pass over the property, as a means to securing the long-term economic viability of Washington Dulles International Airport.

8. For areas exposed to aircraft noise of greater than Ldn 65, the County prohibits the construction of new residential or other types of noise sensitive uses within those areas of Ldn 65 or greater.
9. The County will continue to enforce and update, as appropriate, the Airport Noise Impact Overlay District included as part of the Loudoun County Zoning Ordinance. Such district regulates land uses and provides acoustical architectural performance standards for construction which occurs within this area.

Highway Noise Policies

1. The County will require that all land development applications that propose land uses adjacent to any of the existing and/or proposed arterial and major collector roads will be designed to ensure that no residential or other type(s) of noise-sensitive use(s) will have traffic noise impacts which occur when the predicted traffic noise levels approach or exceed the noise abatement criteria on the Noise Abatement Criteria (NAC) Hourly A-weighted Sound Levels table, or when predicted traffic noise levels substantially exceed existing noise levels. To determine the predicted highway noise levels and to assess noise impacts at a particular location, a land development applicant will be required to use the latest version of the Federal Highway Administration's Highway Traffic Noise Prediction Model (FHWA-RD-77-108, as amended). The design year noise level will be understood to be the probable traffic volume for said facilities at a time of ten to twenty years from the start of construction.

For the purposes of these procedures, the design-year noise levels will be applied to:

- a. Areas that are regularly used by people and in which a lowered noise level would be beneficial. Such areas would not normally include service stations, junkyards, industrial areas, parking lots, storage yards, or the unused open-space portions of other developments and facilities. Design-year noise levels will, however, be applied to the gardens and yards of residential areas and those parks and recreation areas (i.e., open air amphitheaters, golf courses, etc.) or portions thereof where serenity and quiet are considered essential, even though such areas may not be subject to frequent human use; and
 - b. Those places at approximately ear-level height. The values do not apply to an entire tract upon which an activity is based, but only to that portion on which such activity normally occurs.
2. Those proposed land development applications that are determined to approach or exceed the noise abatement criteria on the Noise Abatement Criteria (NAC) Hourly A-weighted Sound Levels table will provide noise protection through the use of passive noise abatement measures such as adequate setbacks, earthen berms, wooden fences, and dense tree vegetation. The County discourages the use of structural noise abatement measures such as concrete walls unless the noise abatement criteria cannot be met. Noise walls should include design elements such as articulated walls and gradual descents that blend with natural features. Walls should be supplemented with appropriate landscaping and reflect the character of the surrounding natural environment.
 3. The County will use noise policies in the *Revised Countywide Transportation Plan* to further outline noise avoidance and mitigation requirements for residential uses, parks, recreational facilities, as well as public and quasi-public or other noise-sensitive land uses along arterial and major collector roads.

Construction Blasting Policy

1. The County will require developers using explosives within 500 feet of a structure to do a pre-and post-blast survey to determine if any damage was done to nearby homes. The survey should include the impact on wells and drainfields, if applicable.



Jo

COMMONWEALTH of VIRGINIA

Environmental Engineering Field Office
400 S. Main St. 2nd Floor
Culpeper, VA 22701

Department of Health
Office of Drinking Water

AUG - 7 2008

SUBJECT: Loudoun County
Water - Springdale Montessori School

Phone: (540) 829-7340
Fax: (540) 829-7337
www.vdh.virginia.gov

Ms. Jane Nordahl
18348 Lincoln Road
Purcellville, VA 20132

Dear Ms. Nordahl:

The results on the enclosed laboratory report forms indicate that all of the contaminants tested for the developmental raw water samples were below the maximum contaminant levels established by the USEPA.

Contaminants	Next Sampling Date
<input checked="" type="checkbox"/> Inorganic	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Metals	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Nitrate/Nitrite	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Radiological	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
Phase II, IIB, and V by Method Numbers:	
<input checked="" type="checkbox"/> Method 551 (Volatile Fumigants)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Method 515.1 (Herbicides)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Method 525.2 (Semi-volatiles)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Method 531.1 (Carbamates)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Method 549.1 (Diquat)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> VOC's (volatile organic chemicals)	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other
<input checked="" type="checkbox"/> Cyanide	<input checked="" type="checkbox"/> To be Determined <input type="checkbox"/> Other

Please note that iron and manganese were detected at **0.85 mg/L** for iron and **0.15 mg/L** for manganese. These results are in excess of the Secondary Maximum Contaminant Levels of 0.3 mg/L for iron and 0.05 mg/L for manganese. The standards for iron and manganese are set from an aesthetic and not a health viewpoint.

Also note that color was detected at **24 color units**. This result is in excess of the Secondary Maximum Contaminant Level of 15 color units. The standard for color is also set from an aesthetic and not a health viewpoint. Elevated iron and manganese may contribute to increased color in drinking water.

If you have any questions, please let me know.

ATTACHMENT 5



COMMONWEALTH of VIRGINIA

Environmental Engineering Field Office
400 S. Main St. 2nd Floor
Culpeper, VA 22701

*Department of Health
Office of Drinking Water*

Phone: (540) 829-7340
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www.vdh.virginia.gov

NOV - 6 2007

SUBJECT: Loudoun County
Water - Springdale Montessori School
PWSID No. 6107695

Jane Nordahl
Sprindale Montessori School
18348 Lincoln Road
Purcellville 20132

Dear Ms. Nordahl:

At your request, I visited your facility to review the existing waterworks equipment (i.e., well, hydropneumatic tanks, treatment system, etc.) in support of a request to use the existing building and waterworks for a preschool/elementary school with a maximum capacity of 118 students. This letter reviews the existing waterworks equipment in anticipation of this project.

Description of System

The water system consists of one drilled well, two diaphragm style pneumatic tank, softener, and distribution system. The water system currently serves a private home, but previously the facility was used as a Bed and Breakfast and the water system was a public water supply.

Well

One drilled well, 165 feet deep, is cased to a depth of 60 feet and grouted to a depth of 50 feet and was constructed on July 14, 1987. The steel casing is 6-inches nominal diameter, and weighs 19.18 pound/ft. The well yield is 50 gallons per minute based on a 2.5 hour test documented on the well completion statement. The submersible pump is set with intake at an unknown elevation and is rated at approximately 15 gpm at 120 feet of head. The well is equipped with a pitless adapter and an approved style sanitary seal well cap. The well has a one-foot casing extension.

Storage

The well discharges to two hydropneumatic tanks located in the basement of the house. The hydropneumatic tanks, 85 gallons nominal capacity each, approximately 57 gallons total effective capacity, are equipped with a pressure switch for control of the well pump. Additional appurtenances to the bladder tank include a pressure gauge.

Treatment

The storage tanks discharge through a water softener consisting of a birm filter for iron removal followed by a cation exchange bed with a capacity of 40,000 grains CaCO_3 . A brine tank capable of

SUBJECT: Loudoun County
Water - Springdale Montessori School
PWSID No. 6107695

According to our records, only nitrate/nitrate and coliform bacteria tests have been completed on the well, with the most recent test taken in 2003. A full round of developmental water tests are required to document the well's raw water quality. Required testing includes nitrate/nitrite, inorganics, metals, VOCs, cyanide, and SOCs. In addition, twenty (20) Most Probable Number (MPN) bacteria tests are required, to be taken hourly over the last 20 hours of the test.

The possibility of using the public water supply as a source of water for a hydrothermal heating system was discussed. Based on the information provided, water from the drinking water system would be passed through a heat exchanger and discharged to a stream passing through the site. The amount of water required was not identified. This water demand would need to be accounted for in the water system design prior to implementing this option. Note that the Virginia Department of Environmental Quality (DEQ), Northeast office, Mr. Thomas Faha, Water Permits Manager (703-583-3846) should be consulted regarding this project.

Recommendations

We recommend the following approach for preparing the waterworks to serve the Springdale Montessori School:

1. We are processing your request for a design exception for the well casing thickness and will notify you when we obtain feedback from our Central Office on this issue.
2. Conduct a pump test for at least 48 hours to confirm the yield of the well. Considering that 20 years have passed since the well was constructed, the yield of the well may have changed.
3. Collect a full round of water quality tests to document the water quality as part of the pump test.
4. Examine current well water quality data to determine if there are any water quality problems.
5. Estimate daily and peak hourly water usage.
6. Bring the waterworks into compliance with the current design and construction standards contained in the *Virginia Waterworks Regulations*. We have identified many of these issues in a sanitary survey inspection report that accompanies this letter.
7. Design waterworks equipment and appurtenances so that the system can meet the anticipated peak hourly demand.

The Way Forward

Prior to modifying the existing waterworks, you must obtain a construction permit. After receipt of the results of the chemical, radiological, physical, and bacteriological tests from the laboratory, plans and specifications, prepared by a Virginia Licensed Professional Engineer, for the well, storage and other appurtenances must be submitted to this office for review in accordance with 12 VAC 5-590-280, of the *Waterworks Regulations*. The plans and specifications should also include a copy of the well completion report and yield test results. We already have a copy of the recorded dedication document and plat for the well lot.

Upon receipt of the required information and documents, and after plans and specifications have been approved, a construction permit will be issued by the State Health Commissioner in accordance with 12 VAC 5-590-230 of the *Waterworks Regulations*. The construction of

18348 Lincoln Rd Purcellville, VA

Well Yield Report

24 hour Yield / Drawdown.

System Name: Nordahl County: LoudounWell Location: Front of HouseWell Number: 1 Class: II Sizes: 6" (inches)Depth: 160' (ft.) Static Water Level: 25' (ft.)Test Pump Brand & Model: F/W 4F35A15 35Gpm 1.5hp HP: 1 1/2Depth of Pump: 120' Airline Length: N/A Sonic meter (ft.)Name & Address of Company Performing Test: Northern VA Drilling
11356 Industrial Rd Manassas VA 20109

Notes: All measurements are from top of casing.

455173739
45 (0)2Date & Time Test Started: 6-3-08 9:40 AM

Time Interval	Time of Reading	Water Above Pump (ft.)	Depth of Water (ft.)	Draw Down Rate (ft/hr.)	Meter Reading (ga)	Pump Discharge Rate (gpm)
Start	9:40	95	25		00000.0	15
5 min	9:45	91.2	28.8	3.8	00007.5	15
5 min	9:50	89.5	30.5	1.7	00015.0	15
5 min	9:55	88	32.0	1.5	00022.5	15
5 min	10:00	86.9	33.1	1.1	00030.0	15
5 min	10:05	86.8	33.2	.2	00037.5	15
5 min	10:10	86.2	33.8	.6	00045.0	15
15 min	10:25	85.1	34.9	1.1	00067.5	15
15 min	10:40	84.5	35.5	.6	00090.0	15
15 min	10:55	84	36.0	.5	00112.5	15
15 min	11:10	83.6	36.4	.4	00135.0	15
15 min	11:25	83.3	36.7	.3	00157.5	15
15 min	11:40	83.2	36.8	.1	00180.0	15
1 hr.	1:00 PM	82.8	37.2	.4	00270.0	15
1 hr.	2:00	82.6	37.4	.2	00360.0	15
1 hr.	3:00	82.6	37.4	— " "	00450.0	15
1 hr.	4:00	82.6	37.4	— " "	00540.0	15
1 hr.	5:00	72.4	47.6	10.2	00816.0	46
1 hr.	6:00	72	48.0	.4	1092.0	46
1 hr.	7:00	71.8	48.2	.2	1368.0	46
1 hr.	8:00	71.7	48.3	.1	1644.0	46
1 hr.	9:00	71.7	48.3	—	1920.0	46
1 hr.	10:00	71.7	48.3	—	2196.0	46
1 hr.	11:00	71.7	48.3	—	2472.0	46
1 hr.	12:00	71.7	48.3	—	2748.0	46
1 hr.	1:00 AM	71.7	48.3	—	3024.0	46

24-08

[illegible]

Well RecoveryDate: 6-4-08**Note:**

- (1) Well recovery period shall start as the pump test ends.
(2) Well recovery period shall be 30-minute intervals for 2 hours

Time of Reading - 30 min time intervals	Water Above Pump (ft.)	Depth of Water (ft.)	Recovery (ft.) 30 - mins
10:00 AM	71.7	48.3	
10:30	88.7	31.3	17'
11:00	90.8	29.2	2.1
11:30	91.2	28.8	.4
12:00	91.6	28.4	.4
12:30	91.8	28.2	.2

45 122
455 173739/01

**VIRGINIA DEPARTMENT OF HEALTH
OFFICE OF DRINKING WATER
GROUNDWATER SYSTEM SANITARY SURVEY REPORT**

To: Jane Nordahl
19348 Lincoln Road
Purcellville, VA 20132

NOV - 6 2007

SUBJECT: Loudoun County
Water - Springdale Montessori School
PWSID No. 6107695

Survey Date: September 20, 2007
business

Survey Type: Special: Preliminary to starting a new

Present at Survey: **Jane & Benny Nordahl, Robert D. Edelman, P.E.**

Follow-up Survey Scheduled For: **To be determined**

Future Sampling Requirements:

Frequency	Inorganics	Metals	Radiological	VOCs	SOCs	Nitrates	Lead/Copper
	3 years	3 years	One time	Quarterly	Quarterly	Annual	6 months
Next Sample Date	TBD	TBD	TBD	TBD	TBD	TBD	TBD

TBD = to be determined. See note 14 and the accompanying letter.

SAMPLE TAP LOCATIONS		
Source Name	Raw Water Tap Number and Location	Entry Point Number and Location
Well #1	RW001 - sample tap at bladder tanks	EP001 - sample tap after softener

As a result of the sanitary survey noted above, the Department offers the following comments. Should you have questions, desire to discuss our findings, or desire a copy of the field evaluation notes, please contact us at (540) 829-7340.

This sanitary survey was conducted in anticipation of using the existing water system, previously used by the Springdale Bed & Breakfast transient non-community public waterworks. The following items must be addressed prior to starting operation of the Montessori School:

1. The bolts on the existing pitless sanitary seal well cap are loose and badly rusted. The bolts should be replaced and tightened.
2. A concrete well pad six inches thick and extending three feet in all directions from the well casing is required.
3. A valved blow off from the raw water piping to the outside of the building is required. It must be capable of flowing the full well pump capacity. A shutoff valve must be located downstream of the blow off to prevent undesirable water from entering storage or treatment systems.

Joe Lock - Re: Springdale Montessori SPEX 07-48

From: Joe Lock
To: Mike Elabarger
Subject: Re: Springdale Montessori SPEX 07-48
CC: lock joe

Questions

- 1) As this application stands, what is the design capacity of the facility? Please show how water usage/sewer capacity is calculated in reference to the application. Presently, the applicant is requesting 117 students and 20 staff. How does the addition of a resident or kitchen for food service change that design capacity? The permit issued in 1985 and installed in 1989 was for a design capacity of 12,215 gallons/week. The proposal submitted to the Health Department was for 118 students. This equates to 1,118 gallons per day at 10 gallons per student or 9260 gallons per week. This is based on 7 days which should be conservative. 10 gallons per student is based on a school with or without a cafeteria. If staff and a bedroom are added, an additional flow would be approximately 350 gallons which is less than the design flow.
- 2) In the Health Dept referral dated Dec. 17, 2007 the staff stated "the Office of Drinking Water has provided recommendations to the applicant that must be completed to bring the well and the water system up to the current standards". What are those standards and has the applicant met those standards? The following are a list of recommendations to prepare the waterworks to serve the Springdale Montessori School by the Office of Drinking Water.
 - "1) We are processing your request for a design exception for the well casing thickness and will notify you when we obtain feedback from our Central Office on this issue.
 - 2) Conduct a pump test for at least 48 hours to confirm the yield of the well. Considering that 20 years have passed since the well was constructed, the yield of the well may have changed.
 - 3) Collect a full round of water quality tests to document the water quality as part of the pump test.
 - 4) Examine current well water quality data to determine if there are any water quality problems.
 - 5) Estimate daily and peak hourly water usage.
 - 6) Bring the waterworks into compliance with the current design and construction standards contained in the Virginia Waterworks Regulations. We have identified many of these issues in a sanitary survey inspection report that accompanies this letter.
 - 7) Design waterworks equipment and appurtenances so that the system can meet the anticipated peak hourly flow.

This office is unaware if the applicant has complied with these recommendations.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION

DAVID S. EKERN, P.E.
COMMISSIONER

14685 Avion Parkway
Chantilly, VA 20151
(703) 383-VDOT (8368)
June 13, 2008

Mr. Mike Elabarger **MSC#62**
County of Loudoun
Department of Planning
1 Harrison Street, S.E.
Leesburg, Virginia 20177-7000

Re: **SPEX 2007-0048 Springdale Montessori School**
Loudoun County

Dear Mr. Elabarger:

I have reviewed the above plan as requested in your submittal dated June 9, 2008, and received on June 9, 2008. Previous comments have been addressed and I have no objection to the approval of this plan.

If you have any questions, please call me at (703)383-2424.

Sincerely,

A handwritten signature in blue ink that reads "Kevin Nelson".

Kevin Nelson
Transportation Engineer

cc: Mr. Imad Salous
spex2007-048se3SpringdaleMontessoriSchool6-13-08ME



ATTACHMENT 6



ATTACHMENT 7





IV. CONDITIONS OF APPROVAL

(10/17/08)

1. The proposed Special Exception uses – a school and child care center - shall be developed in substantial conformance with the Special Exception Plat set, Sheets 1-3, dated July 2, 2007, sheets 1 and 2 revised through August 27, 2008 and sheet 3 revised through August 22, 2008 (“the Plat”); Exhibits A and B, dated June 6, 2008; and the Revised Loudoun County Zoning Ordinance (“Zoning Ordinance”). Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other requirement.
2. Definition of Student – For this application, the definition of a student shall be one child enrolled in one or more programs (Enrichment, Primary, Elementary, etc.) for any part of any day of the operational week of the school and/or child care center.
3. Hours of Operation, School – The school use, as defined by the Zoning Ordinance, shall only operate between the hours of 9:30 AM and 3:30 PM, Monday through Friday, for a period of not more than 46 consecutive weeks each year, beginning with the first full week of September and concluding with the last full week in July. No students shall be on the property after 6:00 PM for activities related to the regular curriculum. Enrichment programs will be offered from 8:00 AM to 9:30 AM and from 3:30 PM to 5:30 PM.
4. Hours of Operation, Child Care Center – The child care center use, as defined by the Zoning Ordinance, shall operate between the hours of 7:30 AM and 5:30 PM, Monday through Friday for a period of not more than 46 consecutive weeks each year, beginning with the first full week of September and concluding with the last full week in July. No students shall be on the property after 6:00 PM for activities related to the regular curriculum. Enrichment programs will be offered from 8:00 AM to 9:30 AM and from 3:30 PM to 5:30 PM.
5. Maximum # of Children Enrolled – There shall be no more than 117 students enrolled in the child care center and school at any one time. No more than 90 students shall be enrolled and participate in activities that fall under the Zoning Ordinance definition of a child care center.
6. Drop-off/Pick-up Times – The following timetable shall be strictly followed for the dropping off and picking up of students attending either the school or child care facility use at the property.

Program	Planned duration	Anticipated Maximum # of students	Drop-off period	Pick-up period
Morning Enrichment I	8:00 – 9:30 a.m.	30	7:30 a.m. 7:45 a.m.	---
Morning Enrichment II	8:30 – 9:30 a.m.	30	8:00 a.m. 8:15 a.m.	---
Morning Enrichment III	9:00 – 9:30 a.m.	30	8:30 a.m. 8:45 a.m.	---

Primary I	9:30 a.m. – 12:30 p.m.	45	9:00 a.m. 9:10 a.m. 9:20 a.m.	12:30 p.m. 12:45 p.m.
Primary II	9:30 a.m. – 3:30 p.m.	45	9:00 a.m. 9:10 a.m. 9:20 a.m.	3:30 p.m. 3:45 p.m.
Elementary I	9:30 a.m. – 3:30 p.m.	27	9:05 a.m. 9:15 a.m. 9:25 a.m.	3:30 p.m. 3:45 p.m.
Afternoon Enrichment I	3:30 – 4:30 p.m.	72	---	4:30 p.m. 4:45 p.m.
Afternoon Enrichment II	3:30 – 5:00 p.m.	42	---	5:00 p.m. 5:15 p.m.
Late Afternoon Enrichment	5:00 – 5:30 p.m.	12	---	5:30 p.m.

7. Maximum # of Children On Property - The maximum number of students on the premises at any one time, by curriculum category, shall not exceed the following:

Time Period	Maximum students on property	Program
8:00 – 9:30 a.m.	90	Morning Enrichment I, II, III
9:30 – 12:30 p.m.	117	Primary I, Primary II, Elementary I
12:30 – 5:30 p.m.	72	Primary II, Elementary I
5:30 – 6:00 p.m.	* late parents	

8. Maximum # of Employees – The maximum number of employees shall not exceed the number of employee parking spaces on the Property as approved by the Department of Building and Development.
9. Parking Lot – The existing gravel parking lot shall be utilized in its' current state, as delineated on the Special Exception plat of SPEX 1986-0009/SPEX 1986-0049, as a pervious gravel parking lot.
10. Playground Equipment - The applicant shall not place any playground equipment or fill within the portion of the fenced-in playground that is in the minor floodplain, as identified on the Plat.
11. Playground Child Occupancy – The number of children occupying the outdoor playground area in the rear of the residence, as shown on the Plat, shall not exceed fifteen (15) during normal school and child care center operating hours as designated in conditions (3.) and (4.), respectively.
12. Tree Removal – The applicant shall consult with the County Forester at the time of site plan to determine appropriate clearing distances if any trees are deemed necessary to be removed.
13. Historic District Review Committee (HDRC) – Future exterior building alterations will be subject to the County's Historic District Review Guidelines.

14. Limits of Disturbance – Any disturbance within the river and stream corridor area shall be subject to approval by the Department of Building and Development.

Note: The Applicant has agreed to provide a one time fire and rescue contribution to the County in the amount of \$0.10 per square foot of non-residential floor area construction for equal distribution between the primary fire and rescue servicing companies. This contribution shall be made at the time of issuance of the applicable zoning permits. This contribution shall escalate annually from the base year of 1988 and change effective each January 1st thereafter, based on the Consumer Price Index (CPI).